

EPSON CONNECTION

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FEBRUARY 1986

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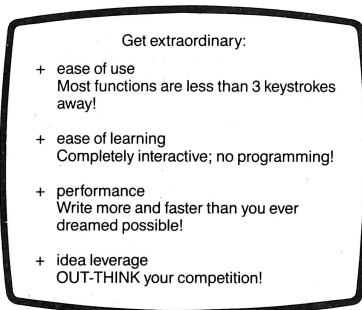
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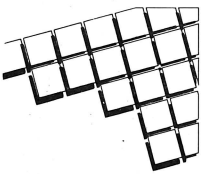
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EPSON CONNECTION

FEBRUARY 1986

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& Wills, EpsonConnection.

DEPARTMENTS

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Editorial

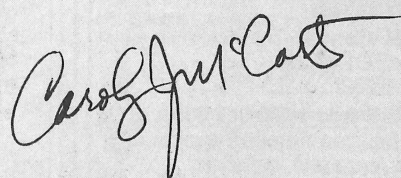
This issue focuses on three operating systems which work with Epson computers; MS-DOS, ZCPR3, and CP/M Release B. The MS-DOS article is an introduction for those new to the terminology and commands, and is the first in a series of articles on MS-DOS we will be publishing. ZCPR3 is a replacement operating system for CP/M which gives additional commands and flexibility, and can be used with your CP/M programs. In the article about customizing CP/M B, Allen discusses some techniques to personalize your operating system to meet your needs.

We are pleased to note that Epson America celebrated the new year by releasing the source code for CP/M 80 B Release. Chuck Champlin, Epson America User Group Support, has mailed disks to each official User Group containing the CP/M B source code, specs on the Equity computers, Q & A's about the Equity, information about the new FX-286 dot matrix printer, as well as a variety of informative notes and a few public domain programs (thank you Chuck). The CP/M B XBIOS Reference manual, called ERS.DOC (80 pages printed out), is already available on EpsOnLine and the main EpsonConnection BBS.*

Several Epson Users Groups have recently elected to become subgroups of larger and more general computer user groups. The advantage is the access to broader resources for users interested in MS-DOS, Turbo Pascal, CP/M, etc. For Valdocs users there is a continued and important role for Epson User Group publications. I would like to give special mention to a few of these outstanding newsletters. The Valnews (Epson Users of San Francisco) Oct-Dec issue was filled with information about Valdocs+, and featured an article about the "Views" function in the editor. Ecco-Gram (Epson Capital Computer Organization), Eps'n Link (Epson Club of Toronto), EpsOnNotes (Mile High Epson Users), HDEUG (High Desert Epson Users Group), and ValWorld Gazette all deserve special mention for their exceptional newsletters. You'll find their addresses and phone numbers in the EpsonConnection Annual Resource Guide (December '85). The efforts contributed by QX owners to help other users has been tremendous, and I hope it will continue throughout the years to come.

Rising Star Industries has begun their Road Show User Support program. Chris Cummings, executive director of customer sales and services, with a few other RSI staff will be visiting the following areas: Jan 11 - San Francisco, Jan 25-26 - Dallas/Ft. Worth area, Feb 8 - Virginia/ Washington D.C., Feb 22 - Kansas, March 8 - Portland (OR). The road show will focus on answering users questions, with hands on assistance and demonstrations. The rumor is that the next release of Valdocs+ will be their accounting/checkbook program, which will come before the spell and check upgrade. The new pricing for Valdocs+ went into effect on Jan 16th, and is: Valdocs+ only \$349, ValDraw/ValPaint \$495, Valdocs+ Package (which will not include slideshow, ValSpell and ValCheck, or coupons) \$549 with a mouse (\$449 without a mouse). RSI Basic 2+ \$149.95, the RSI compiler is \$75, (or together \$200). Chris Cummings has asked that users contact her directly if they have problems or confusion about their orders.

* If you do not have a modem or a user group in your area and want a copy, send \$10. to the EpsonConnection at P.O. Box 14227, Detroit, MI 48214, attention: "CP/M B Source Code Disk".

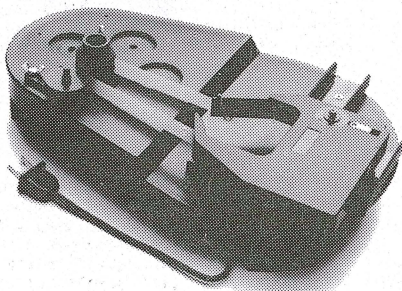


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Letters to the Editor

A Letter to Gordon Mustain (formerly of RSI)

After thoroughly reviewing the Sep. '85 "Rising Star," I think I understand your Valdoks+ proposal. Allow me to restate it in "end-user" terms:

- a: Last May you released an incomplete, unreliable Valdoks 2.0 to your captive market of patient QX-10 owners in order to satisfy a contractual obligation to Epson.
- b: Barely three months later you announce Valdoks+, rising like a phoenix from the ashes of 2.0. Since it took RSI 2 years to achieve version 2.0, it is obvious that you withheld much of your creative programming effort from Epson in anticipation of your corporate divorce.
- c: You are now offering your loyal followers the "opportunity" to acquire Valdoks+ at a whopping %70 discount from your arbitrarily set "retail value." The fine print reveals that even at this bargain-basement price, you are still asking us to pay in-advance for software that is still under development - and based on your track record, may never see the light of day!
- d: Adding insult to injury, you strongly advise the addition of both a RAM-disk and a hard disk to make Valdoks operate "satisfactorily." Would you spend \$2-3,000 upgrading a discontinued hardware system? The added investment exceeds the resale value of the computer!
- e: You are trying to rid your shelves of the draw/paint programs by bundling them with the more desirable modules. My QX-10 was purchased for word processing, data-base management and spreadsheet functions. With few exceptions, those are the same reasons most other buyers here cite. The appeal of Valdraw (which, I understand, bears a striking similarity to QX-Draw) and Valpaint is extremely limited. The paint program is worthless without a color display and the addition of an expensive color printer/plotter.
- f: Eliminating the unnecessary paint/draw software from the equation reveals the "real" price at which you are apparently willing to sell Valdoks+ . . . \$49.

After waiting patiently for two years, I feel cheated and manipulated by RSI. Those feelings are shared by my fellow QX-10 owners. For your company's efforts to succeed without Epson's support, you will need the goodwill and word-of-mouth that only satisfied users can provide.

Clearly you must price RSI's products to compete in the marketplace and make a profit for the company. I suggest you reconsider your approach and try to develop a more acceptably structured and priced package.

Sincerely
Stephen A.B. Krant
Richardson, TX

Dear Ms. McCarthy,

I read with interest the letter to the editor in the November issue concerning technical manuals for the QX-10.

There is another source of excellent manuals for this computer, as well as the MX-80, MX-100, RX-80, FX-80 and FX-100 printers. They are produced by the Howard W. Sams Co. which has been the main supplier of manuals for the electronic repair industry for many years. The price for the QX-10 manual is 39.95 and the printer manuals are all \$19.95 each.

Being a QX-10 owner myself I am willing to sell these to other owners at a %15 discount (see new products).

Norman Keon
Alma MI

Dear Carolyn,

Just a note to let you know that I have received information from Epson America which has allowed me to access the expert mode of MATRIX (allows you to create characters in 32 x 16 matrix, make new fonts instead of those under the ASCII codes of HASCI.STL, separate fonts from a style, make a new style, etc.). Note that the "CI" and "CO" in the listing below are all letters. CONTROL-BACKSLASH is descriptive of two keys pressed simultaneously. CARRIAGE RETURN is the key which concludes entry of one line if input and is indicated by <CR>.

BOOT SYSTEM

type CONTROL-BACKSLASH (to access zapple).
type CI27 <CR> (you will get binary number in response, which should be 00001111).
type CO27,0F <CR> (the second O is the numeral zero)
type G <CR>
type MATRIX <CR>

(MENU APPEARS WITH ADDED FEATURE)

Sincerely
Maurice J. Bauhahn
Republic of Singapore

The Users

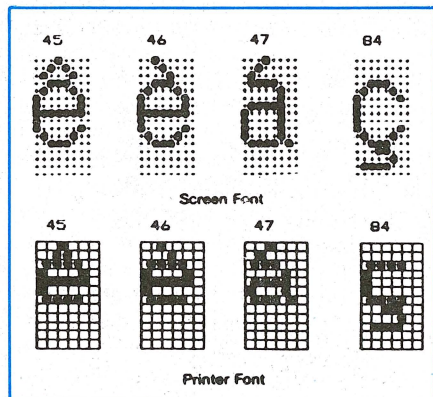
Use MATRIX.SYS to Add Foreign Characters

We used MATRIX.SYS to replace 7 rarely used graphics characters with accented foreign characters which we use more frequently (3 accented e's, 3 a's, and the c "cedilla").

It took some experimentation, particularly with the first character, to get the dot configuration right, so we offer our results to save a little time for others who may wish to try it.

The new characters can be printed only with printers which provide the Valdoks graph-shifted graphics characters (Epson FX and LQ printers, but not the RX series or daisy-wheels). Each character must be designed twice, because the printer font differs from the screen font (both are shown in the examples below).

The new characters will not display or print bold, italicized, or "expanded-compressed", though they will print double-wide. Another printer and screen version must be designed if you wish to have them in compressed mode, which we have not done; this might also give you the "expanded-compressed" characters - it seems logical. *Re-printed from the "EPS'N LINK", Nov. '85. Newsletter of the Epson Club of Toronto.*



Broken Monitor Cable?

Having trouble with cables? Especially the (too short) one from the CPU to the monitor on the QX-10? I did. I finally broke a wire in this cable and therefore had no monitor picture, and working by memory was too much for me. I

wanted more than just a replacement, I wanted a longer cable so I could position the monitor where I needed it (closer), not where Epson thought I should have it.

I called several people in the know, but they could only recommend that I contact an electronic store. The store never heard of such a thing; "A DIN cable with eight pins on one end and seven on the other, now really lady, who do you think you are kidding?" However, a customer in one store said to contact "Technical Sales and Service (TSS) in Virginia. They can make any cable." I did, and they did, overnight at that. I took my bad cable to TSS and the cable man there took the connectors off my bad cable and made me a beautiful new 4-foot-long cable that gives me plenty of maneuvering room. The charge was only \$15; not bad considering a cable from Epson is \$30 and too short anyway. One day service too, who could ask for anything more? *Re-printed from the "Ecco-Gram", Nov. '85. Newsletter of the Epson Capital Computer Organization, Washington, DC.*

Mag Garth

Cleaning Up Disk Space in Valdoks +

If you have been playing with the Views and Form capabilities, you can check your data disk to see how much space has actually been used. From the Editor, press the MENU key. Select <E>xit to TPM, and at the A> prompt, type LIST B: <CR>. LIST is a TPM utility which lists files by their extensions. Under the TMP and Val extensions, check to see if you have extraneous EDITCUR#.VAL files and verify the sizes. You might want to clean up the disks and start over.

You cannot clean up the disks by simply deleting the form (from the forms menu). that only deletes the EDITDEF#.VAL file. To delete the other two files, use either the era command in TPM, or select COPYDISK, <F>ile copy, delete, rename, and mark the appropriate files for deletion. *Re-printed from "The Scratchpad" Newsletter of the Portland Epson Group, Nov. '85.*

Judy Sharp

Albuquerque Epson Users Group

Valdocs 2: Multiple Document Printing & Placemark Deletion

I found out how to print several documents as one. Just select the option <O>ne or more documents, then when Valdoks presents the Index of documents, and you choose more than one document to print, the proper menu will pop up automatically.

How do you delete a placemark in a document? Select CTRL B, <S>et/reset placemark, choose the placemark that is already set by typing the number, then press STORE.

Re-printed from the "Hi-Society", Nov. '85. Newsletter of Houston's QX-10 Users Society.

Epson FX Upgrade / Compatible With Valdoks 2

Valdocs 2 (from Epson) and Epson's upgrade for the FX series printers are not 100% compatible. There is no print driver designed for the FX-85/185 printers. As a consequence, if you set the new series as <N>o buffer, you will lose operation of the STOP key, and the PRINT toggle ON/OFF in MAIL will no longer function. A few other bugs, also! *Re-printed from "The Epsonite", Nov-Dec '85. Newsletter of the North, West Pennsylvania Users Group.*

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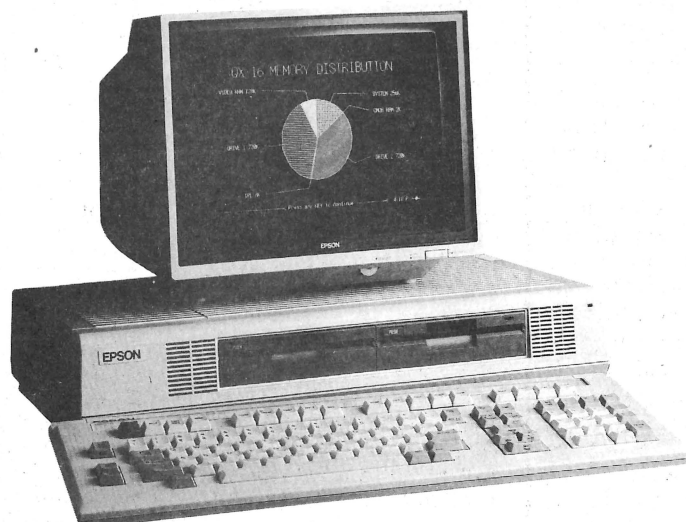


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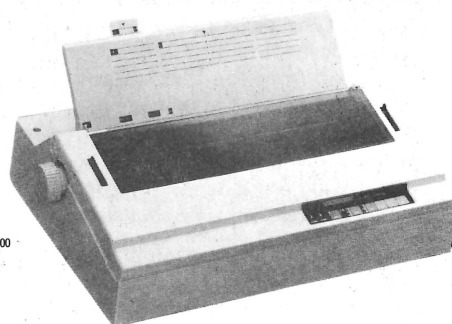
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BILL HELPS THE HOUSTON USERS

by John S. Comeaux

What's better than having 133 helpful members in a Users Group? Answer: Having Bill Howey on our side.

About half the users in the QX-10 Users Society in Houston own their own businesses and don't have time to become computer experts. Most of them bought their QX-10 with the expectation that enough tutorial introduction and "Help" would be available that the computer would teach them. It hasn't quite worked out that way.

Let's face it: The QX-10 with Valdocs is the easiest computer to begin to use, and sometimes the most frustrating to continue to use. With so many people using a common product, you'd think we'd all have the same problems. Not so. Some have telecommunication problems, some have word processing problems, some hardware, some operating system, some dealer related, some distributor related, and some manufacturer related.

So the users are looking for help in every quarter. Bill Howey, a frequent caller to EpSource, and on contract with Epson America Inc., knows about the users in Houston. He heard about our problems and offered to come down to Houston, on his own time, to help us here on the third coast.

Someone really cares about us after all.

Bill Howey is an intense man, with strong opinions, and definite ideas of how things ought to be done. His contract with Epson requires him to know the computers and software, work closely with them, but not be biased one way or the other. Bill spent 9 hours on a Saturday in August with our group.

Not wanting to short change his audience, Bill brought with him an Epson QX-16 Hard Disk with a Comrex 6700 color monitor, a CR-128 printer buffer (holds 128K), the CR-700 switchbox (allows 2 printers, or two computers into one printer), his PX-8, and enough disks and cables to open a store. Thanks to Bill, the club became the owners of the two-volume technical support manuals for the QX-10, a Valdocs 2 tutorial book, and copies of CP/M B2.25.

Bill's main emphasis was that QX-10 users should get to know the operating system: CP/M, TPM, and the many utilities available. Valdocs has grown so big that users can no longer be insulated from the operating system. And, the utilities are becoming easier to use, many having help files built-in.

He showed beginners how to use simple CP/M utilities, and showed

advanced users new twists to those same elegant utilities. For instance, the humble PIP is often used just to move files from one disk to another. He expanded on the many options of PIP, like the Verify option, to assure that the transferred copy is an exact replica. He mentioned how you can protect CP/M files with STAT, and he told us how to build our own application menus with MENUPEPS from CP/M B 2.25. He demonstrated the key programming facility, PFK, and even described the Version utility on the TPM disks, to keep up with the many expected updates to Valdocs 2.

The close of the Saturday Seminar ended a full day of learning and sharing. Afterwards, Bill told me he was sorry he couldn't give us more. Don't worry, Bill. You gave us enough information, tips, hints, directions, and ideas to last months. Almost everyone, beginners and advanced users alike, came away from the seminar with something useful. And Bill ... Thanks.

John Comeaux, is the Editor of Hi Society, the Newsletter of the QX-10 Users Society. John is a petroleum engineer working as user support for the technical software department of a major oil company. He has used computers, starting with punched card entry on an IBM 360, since 1972.

HOWEY; ONE ON ONE

Knowing Bill was coming, I prepared sort of a mini-interview, with some questions that I knew were on everyone's minds. Here's how it went.

After reading RSI's publication praising the QX-10 on college campuses (such as Drew University) I asked Bill straightforwardly, how is the QX-10 doing in the academic world? He said what I expected - their experience parallels ours. Students find Valdocs easy to learn, but they soon experienced the same troubles as the rest of us: blown indexes, incompatible documents, ERROR 16, etc.

He spoke of his conversations with Chris Rutkowski, and with the folks at Epson and Rising Star. He shared with us his disappointment when he learned that the RSI folks wrote, debugged, and enhanced Valdocs on a QX-10 equipped with 2 megabytes of RAM disk. That much memory allows Valdocs to operate at a very fast rate, because write-to-disk and read-from-disk operations (when the red light is flashing on your disk drives) are eliminated. Imagine pressing the STORE key and a menu pops up before you can say "Chris Rutk. . ."

Bill noted that Valdocs is not preparing the users for a transition into other areas of computing. Once a user gets dependent on the specialized row of keys on the HASCI keyboard, he cannot transfer his knowledge to other computers, or other software. WordStar on any other

computer looks nothing like WordStar on the QX-10. But the other side of the coin is, why bother to force so much computer learning on people that only need certain functions. Why not make computers as easy to use as toasters, or TV's. (I was going to say phones, but have you bought a programmable, auto-dial, auto-answer telephone lately? The instructions are as long as a dictionary.)

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THE TRIPLE-EARED WONDER-MOUSE

Using Your RSI Mouse With the QXPC2 Titan Board and MS-DOS Programs.

by David Cherniak

If you are the proud owner of the Rising Star mouse you will be very interested to know that the little rodent can have another life. Your mouse, your very own triple-eared wonder, can work in a whole world of ways in MS-DOS programs. It can zip the cursor around in LOTUS 123, freeing you from the tyranny of NUMLOCK, it can make WORDSTAR and other command-driven word processors easy to use through pop-up menus, it can substitute for the Microsoft mouse in WORD and MULTIPLAN, and it can be programmed to function in just about any way you want.

It can do all these wonderful things because the PC Mouse that Rising Star is shipping with Valdraw/Valpaint was developed by Mouse Systems of Santa Clara, CA for use on none other than the IBM PC. When purchased off the shelf it comes with a disk full of support software for many of the most popular MS-DOS programs. In theory this means that you can run these programs with your mouse if:

- You happen to be running the Titan QXPC2 board in your QX-10 (with certain limitations described later).
- You own the dual processor QX-16.
- You own any of the new Equity series computers.
- You will need the original Mouse Systems Mouse software.

Now if all this sounds so fabulous that you want immediate gratification there are a couple things you should keep in mind, not the least of which is: just how useful will the thing be in the first place? Let's take a quick look at the creature's historic development.

The mouse was invented back in the mid 60's at the Stanford Research Institute by Douglas Engelbart who was working on exploring the interface between people and computers. His first prototype was a round edged box with a tail-like wire coming out of one end and buttons sticking up like ears out of the other. The task it performed was very similar to what mice are used for today, moving the cursor around the screen and selecting action from a menu. Later in the late 70's this groundwork was incorporated into a revolutionary new computer work station Xerox was developing at its Palo Alto Research Center. For those of you who think that Apple developed the mouse-icon interface the truth can be seen in the Xerox Star. What Apple succeeded in doing was cloning the concept in the Lisa and selling it to the public in the Mac.

But almost since its creation the mouse has been somewhat controversial. Its detractors claim that it forces you to take your hands off the keyboard and therefore it decreases your speed. Its supporters point to studies done at Xerox's P.A.R.C. demonstrating that a mouse is faster than function keys for moving a cursor around the screen.

Personally I find mouse bashing as ridiculous as icons carried to Mac-like extremes. The mouse, like any tool, is appropriate for certain tasks. I wouldn't want to use the cursor keys in VALPAINT any more than I'd want to point to letters on-screen in order to type a document. In between however, there's a lot of room; mice will be appropriate depending on the task and the personal preferences of the user. Those of you who have the

Mouse Systems Mouse and MS-DOS capability will be able to judge for yourselves. Off the shelf the PC Mouse comes complete with a support disk labeled **Designer Pop-up Menus**. The intention here is not so much to infer that the menus are by Calvin Klein as that they've been designed for a variety of programs. The latest release, Version 4.1, contains pop up menus for: Lotus 123, Multiplan, Visicalc, Flashcalc, Supercalc 3, Wordstar, Multimate, Volkswriter, IBM Personal Editor, PFS:Write, dBASEII, Microsoft Word 2.0, Symphony, and Framework. You'll note that while this list includes most of the top sellers in the MS-DOS world there are a few major gaps such as Word Perfect 4.0. Suffice to say that there's one major caveat to this otherwise excellent system, some software is not mouseable at all, while others are not worth mouseing period. More about the actual functioning of the system later. First a description of how it works.

The installation program allows you to configure your applications software. This procedure doesn't modify the original program in any way, it basically just moves the menus onto the program disk, along with the driver and a generic batch file called MOUSE. Thus after installing WordStar you'd call up the program by typing MOUSE WS, at which point the driver and the pop-up menus get loaded into high memory before Wordstar itself.

At this point if you click the left button you'll see a pull-down version of Wordstar's opening menu. Slide your mouse to the appropriate choice, click the left button again and the program responds. After loading a document you can select one of the sub-menus of the left button such as

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the block menu, and the next time you click the left button that will be the menu to pop up...the cursor *sticking* at your last choice. The middle and right buttons bring up different menus but their use is consistent in each word processor: the left button is for editing commands, middle is for motion (top of file, etc.) and right is for file commands (save, print, etc.).

The menus come with their source codes and a compiler in case you want to customize them. It's just a matter of learning the command set from the fairly comprehensive documentation. You then modify the source program in your favorite editor and re-compile. Voila! The same technique can be applied to designing a mouseified version of whatever.

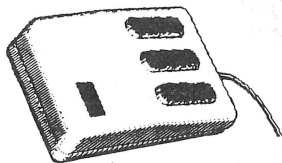
If you design your own menus you can make them as complex or as simple as you wish. You can also have more than one set of menus for the same program depending on different types of use. As an example of a simple but very effective editing setup you could bypass menus altogether; define the left button to be the mark block command, the middle as move block, and the right as delete block. By using the mouse to move the cursor and then click the appropriate button you'd have a very fast and efficient way of editing text, much faster than keyboard commands.

Wordstar is an excellent example of making a command driven program easy to use. The menus are well designed, clear and not overly long. The sticking feature means that even if you're working off a sub-menu the next time you hit the same button the same choice will be waiting. For the occasional user of Wordstar like myself it's the only way to travel...instead of the cludgy Wordstar menus all the commands are at your fingertips, including the dot commands by the names of their functions. Unfortunately, as the Mouse Systems manual points out, cursor control in Wordstar is fairly slow. This means that the mouse will get ahead of the cursor if you move it too quickly which can decrease your accuracy and your speed, which is one of the great advantages of using a mouse to edit text with in the first place.

An example of a word processor that lends itself perfectly to mouseification is the IBM Personal Editor. This unique, command-driven program is blindingly fast, cursor included. It's almost impossible to move the mouse fast enough to get ahead of it. Also, because Personal Editor allows cursoring to any part of the line regardless of carriage returns, February 1986

angular movement is along straight lines instead of jumping to the left margin while passing blank lines. Recognizing this the Mouse Systems people have written elaborate menus for this program. All in all it's a beautiful combination for editing text.

Another program I tested was Microsoft WORD version 2.0. This implementation is completely different. WORD is written to be used with the Microsoft Mouse (...the people who gave the world MBASIC don't miss a beat) so the Mouse Systems people have written a driver for their own superior product, and it works flawlessly, once you know how to set it up. I can't tell you how WORD 2.0 runs on the QX-16 or the Equity but I had a miserable time getting it up on the QX-10 until I loaded it for monochrome mode (WORD /M for those who want to try, and put MS MOUSE.SYS as the first driver in the CONFIG.SYS file). This way you can't have graphics such as bold and italics on screen but you don't have to wait till next Sunday for the screen to paint, either.



WORD and any other mouse supported product from Microsoft such as MULTIPLAN treat the mouse as an integral part of the software. The mouse has its own cursor which moves very rapidly and calls the text cursor once a button is pushed. This kind of system works very nicely for speed compared to the other (Personal Editor excepted), where the mouse is basically fooling the software by sending it the same codes as the cursor keys. However, with WORD you lose the terrific convenience of the pop-up menus. You have to memorize dozens (seems like hundreds) of mouse commands or use a template which can defeat the entire purpose of using a mouse as a rapid pointing device. If you happen to be addicted to WORD as I gather some people are, then this is your ticket to mouse.

Now for a slightly different twist in this mouse tale. If you hate the implementation of the numlock key with every fiber of your being, then sit up and take notice. The PC mouse is a way to get around the baboons who were responsible for this desecration of a beautiful keyboard. (Up here in Toronto the appearance of the Titan QXPC2 board spawned such fury over the inability to use the cursor keys and the numeric pad at the same time that a spontaneous

letter campaign developed. May the guilty software developers dream of lizards.)

The solution comes via the PC Mouse. When you run a spreadsheet such as LOTUS 123 you can use the numeric pad with your right hand and move the cursor with the mouse in your left. If you're entering figures in rows or columns you don't even have to hit the return key, just slide the mouse in the direction of your next entry. The same problem can be solved in DBASE III where it's far more serious for lack of a screen indicator of numlock's state. You can go raving mad trying to remember which mode you're in. I eventually gave up and with more than a little cursing I started using the top row keys for numeric entry. No more!

The bottom line here is that if you have the mouse for use in Rising Star programs and you also have MS-DOS capability then you'll most probably want the Mouse Systems software. You'll be able to use it effectively depending on what software you use it with. Although you can adapt it to run with any program, the best ones to use it with are those with the fastest cursor control. If you have a QX-10 be sure and get version 3.00A of the software. The latest version (4.1) is necessary to run Microsoft WORD 2.0 but the other kinds of programs won't run on 4.1 without causing a "Serial Port Buffer Overflow" error and crashing your system. Perhaps in the future Mouse Systems will be able to correct the problem or Titan can enlarge the serial port buffer in QXPC2. In any case version 3.00A runs everything I tested with no problems.

As for the larger question of the appropriateness of the mouse as a control device, of note is the fact that by the time you read this Rising Star may have implemented the mouse in Valdocs+. The fact is that a mouse is very efficient for moving a cursor around for editing text. As Chris Rutkowski points out, 'the only problem arises when you have to take your hands off it to enter text, you just don't want to let go'. And this brings us to the real attractiveness of mice - they're smooth and effortless compared to striking keys.

If you want to obtain the Mouse Systems software you might try Rising Star. If they're not carrying it (they hadn't decided at the time of this writing) then Mouse Systems indicated they can sell it to you.

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Exploring MS-DOS 2.11

PART I

by the EpsonConnection Staff

This is the first in a series of articles on the MS-DOS v2.11 operating system. In the series, we will begin by covering the very basic elements and commands of MS-DOS 2.11, and progress through such technical topics as 're-direction and pipes' and batch file command processing.

This series is not intended to cover every nook 'n' cranny of MS-DOS. It's goal is to introduce the many aspects of MS-DOS in a more friendly and understandable fashion than most MS-DOS manuals that came with your system. Once you understand functions explained here, it is recommended that you refer to your manual if you desire more specific information on any particular subject.

What exactly is MS-DOS?

DOS is an acronym for Disk Operating System. An *operating system* is a collection of programs that direct and aid in the management of computer resources. A *disk operating system* also controls the use of disk drives for the storing and loading of programs and data.

The letters MS that prefix MS-DOS are simply the initials of Microsoft Corporation (short for Microcomputer Software), the company that wrote it.

Most computer manufacturers do not build the operating system into the computer. The operating system must be loaded into your computer from a disk when you power it on. This is done for versatility; to allow your computer to run many different kinds of operating systems such as CP/M-86, XENIX, and other popular operating systems. Also, if the DOS were permanently stored in your system, it would be much more difficult for the manufacturer of your system to supply you with DOS updates and bug corrections (which would require to open your computer and change ROM chips).

Besides allowing the computer (CPU) to communicate with its resources (printers, disk drives, keyboard, screen and other peripherals), the DOS also provides you with a *user interface*, a means to allow us to communicate with the system using simple words and commands.

MS-DOS vs. CP/M

The first popular micro computer operating system was CP/M (short for Control Program for Microcomputers), which was developed for a computer chip known as the 8080, an 8-bit chip, way back in the mid 1970's. The internal architecture of 8-bit chips limited the size of directly executable programs to 64k (actually, even less than 64k since CP/M itself occupies approximately 8k, leaving only 56k), thus, limiting speed, efficiency, and power.

MS-DOS was originally written for the IBM series computers using Intel microprocessors. Because MS-DOS was written for the more advanced 8/16 bit microprocessors and beyond, MS-DOS is able to directly address more RAM than CP/M can. An integrated program such as Ashton Tate's dBASE-III requires at least 256k of executable RAM space on an MS-DOS system. MS-DOS based computers can directly address up to 640k of RAM, which means programs can be ten times larger than on the older CP/M systems.

MS-DOS Basics and CP/M Similarities

CP/M users will find basic commands of MS-DOS very similar to CP/M. If you are not familiar with CP/M, the basic system functions are easy to perform. We recommend that you try them as they are covered in this series.

Upon booting your system (and entering the optional date and time),

MS-DOS should drop you to what is known as the *system prompt*. The **system prompt** is a letter followed by a colon or a greater-than sign (e.g., A>, A:, C> or C:). The letter represents the name of the logical (not necessarily physical) disk drive you are using. If you have a single disk drive, then all you have is the 'A' drive. Two drive systems have an 'A' and a 'B' drive. If you have a hard drive, it is usually configured as drive 'C'. Whatever letter is indicated in your system prompt represents the drive you are currently 'logged into', that is, all commands you enter will be processed on the indicated drive. If you wish to access a different drive, simply enter the drive letter followed by a colon and press RETURN, i.e.

A>b: <RETURN>

B>

Will log you onto the 'B' drive.

A>dir				
Volume in drive A has no label				
Directory of A:\				
ANSI	SYS	1669	2-12-85	12:00p
ARCHIVE	EXE	24448	2-12-85	12:00p
CHKDSK	COM	6468	2-12-85	12:00p
COMMAND	COM	16197	2-12-85	12:00p
DEBUG	COM	12153	2-12-85	12:00p
DISKCOMP	COM	1976	2-12-85	12:00p
DISKCOPY	COM	7365	2-12-85	12:00p
DU	EXE	7376	2-12-85	12:00p
EDLIN	COM	8110	2-12-85	12:00p
EXE2BIN	EXE	1649	2-12-85	12:00p
FC	EXE	2585	2-12-85	12:00p
FIND	EXE	6331	2-12-85	12:00p
FORMAT	COM	10135	2-12-85	12:00p
GRAPHICS	EXE	1277	2-12-85	12:00p
HDFORMAT	COM	2998	2-12-85	12:00p
HDPART	EXE	21504	2-12-85	12:00p
LINK	EXE	42368	2-12-85	12:00p
MODE	COM	2756	2-12-85	12:00p
MORE	COM	4380	2-12-85	12:00p
PRINT	COM	4506	2-12-85	12:00p
RECOVER	COM	2308	2-12-85	12:00p
SETPRINT	EXE	5200	2-12-85	12:00p
SETUP	EXE	8400	2-12-85	12:00p
SORT	EXE	1632	2-12-85	12:00p
SYS	COM	1522	2-12-85	12:00p
TREE	COM	1691	2-12-85	12:00p
BASIC	EXE	66048	2-06-85	10:44a
EPSONGD	DRV	2139	1-01-80	19:12p
FILINK	COM	2512	2-19-85	4:54p
TEXT		220	12-17-85	10:31a
30 File(s)		46080 bytes free		


```
A>dir /w
```

```
Volume in drive A has no label  
Directory of A:\
```

ANSI	SYS	ARCHIVE	EXE	CHKDSK	COM	COMMAND	COM	DEBUG	COM
DISKCOMP	COM	DISKCOPY	COM	DU	EXE	EDLIN	COM	EXE2BIN	EXE
FC	EXE	FIND	EXE	FORMAT	COM	GRAPHICS	EXE	HDFORMAT	COM
HDPART	EXE	LINK	EXE	MODE	COM	MORE	COM	PRINT	COM
RECOVER	COM	SETPRINT	EXE	SETUP	EXE	SORT	EXE	SYS	COM
TREE	COM	BASIC	EXE	EPSONGD	DRV	FILINK	COM	TEXT	
30 File(s)		46080 bytes free							

```
A>
```

DIR

The first command that all users must learn is the 'DIR' command, which is short for *directory*. When this command is entered, your system will respond by displaying all the files that are stored on the logged in disk drive. MS-DOS also displays the size of each file (in bytes), and the date and time it was last modified or created. If it is important for you to know when files are modified, be sure that you enter the correct date and time when you first boot your system, otherwise, MS-DOS will default to an arbitrary date that is set in the computer's ROM (note that CP/M systems do not display file sizes or modification dates with the standard DIR command).

DIR may be performed with what are known as *command parameters* or *switches*. A command parameter is an extra command that is added to the end of a command to instruct it to perform an available option. Two parameter options recognized by the MS-DOS DIR command are /W and /P. Entering 'DIR /W' (WIDE mode) tells the DIR command to display the filenames only, allowing you to view the entire directory of a disk that may contain a hundred files. 'DIR /P' (PAGE mode) tells the DIR command to pause when the screen fills with information, to resume viewing the directory, press any key. CP/M does not support these MS-DOS DIR command parameters.

Filename Structures and Contents

What exactly do the filenames that are displayed represent? Basically, there are two types of files; programs and data. These two categories can be broken down even further, since there are many types of programs and data files. You can usually identify the type of file by what is known as its extension; the three letters that are shown after the period of a filename. The first eight character places in a filename usually represent what the program does or what the data file contains (e.g. IRSLETTR.TXT could be a letter to the IRS you have written).

The most common program files stored on a typical MS-DOS system are files with the extensions of COM, EXE, SYS, BAT and BAS. COM and EXE (and BAT, but these are much different) programs can be run

directly from your DOS. Type in the first 8 characters (if the filename is less than 8 characters, then enter only the word before the period) of the filename and press RETURN, and the program will run. If the program requires parameters, it will probably return with an error message, but nevertheless, the program will run. Files with the extension of SYS are MS-DOS system programs, programs used by MS-DOS when it boots up to alter its configuration. SYS files, known as device drivers, allow MS-DOS to communicate with other peripherals (e.g. a hard disk, ram disk, networks, etc.). CP/M does not support SYS or EXE files. Files with the extension of BAS are programs written in BASIC. To run these programs, you must first load BASIC into your computer, then load the BASIC programs into BASIC to execute them. A batch file (BAT) is a list of operating system commands or program names stored in one file. A batch file is a time saving operation; instead of having to enter six separate programs one at a time, they can be nested in one file where they can be run automatically. The CP/M equivalent to this are SUBMIT (SUB) files.

A data file usually contains information that is manipulated by a program. Such files usually have an extension of DAT. Files with the extensions of TXT, DOC, or MAN (text, documentation, and manual; respectively) are usually in a form which can be read directly on the monitor.

Wildcards

Now that you have an idea of how filenames are structured, now let's implement the DIR command using *wildcards*. Just like CP/M, MS-DOS supports two wildcard characters; the asterisk and the question mark. The question mark symbolizes a single character position and an asterisk represents all character positions within the field. For example, if you enter 'DIR *.COM', MS-DOS will display all the files that contain an extension of COM only. If you had a series of documents called CHAPTER1.DOC, CHAPTER2.DOC, CHAPTER3.DOC...all the way through CHAPTER9.DOC, then you could do a directory of only these files by

entering 'DIR CHAPTER?.DOC'. Refer to your MS-DOS manual for more examples or detailed information. These wildcards are very useful with many other MS-DOS commands, therefore it would be very beneficial for you to fully understand them.

Basic Housekeeping Commands

Now we'll cover some of the most basic commands that most MS-DOS users will at one time or another be required to implement. Housekeeping commands really don't do anything beneficial for you from a user standpoint. They are used to allow you to maintain an orderly and efficient system, or what is also commonly called 'system maintenance'.

Some of the functions you will no doubt wish to implement include the preparation of a floppy disk (formatting), copying files from one disk to another, erasing obsolete files, and determining how much space you have left on your diskettes.

Formatting Diskettes

FORMAT.COM is probably the first command you used on your system. FORMAT will prepare your new (or used) diskettes so that you may store information on them. An attempt to use a diskette that has not been formatted would be like trying to build a house on a cloud, which would be impossible since the house would require some means of support. The same goes for unformatted diskettes; the operating system must know where it can place files and keep track of where they are, and how big they are. Formatting a diskette will lay the foundation that allows MS-DOS to do this. Note that formatting a diskette will effectively destroy any data already on the diskette, so check to see if you have files present before you format it.

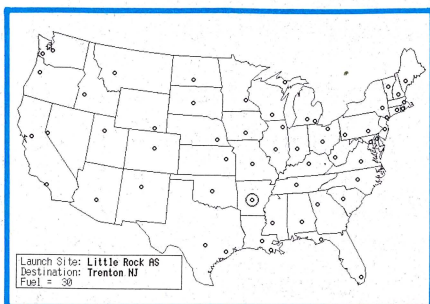
To format a diskette, first make sure you have the FORMAT.COM program on your system. Start the program by entering 'FORMAT' (or d:FORMAT where d represents the drive FORMAT.COM is stored on). FORMAT will tell you which drive it is going to use to format the diskette, and it will ask you to press RETURN to continue. WARNING!! It is recommended that all diskettes be formatted in your 'B' drive (if you have one). This will eliminate the possibility of you formatting your MS-DOS system disk, something that I'm sure most readers have already done once (including us!). To do this, enter 'FORMAT B:'.

FORMAT.COM supports three parameters. /O (Old) will format the diskette so that it may be used with older versions of MS-DOS as well as

Mission USA

A New RSI IPG Educational Program for the QX Computers

Reviewed by Scott Hummel



Since the demise of Oakwood software, the development and distribution of educational software for the QX-10 has been practically non-existent.

Now, through the Independent Programmers Guild sponsored by Rising Star Industries, comes an excellent program called *Mission USA*, where the goal of the program is to guess the names of States as

they are displayed on-screen.

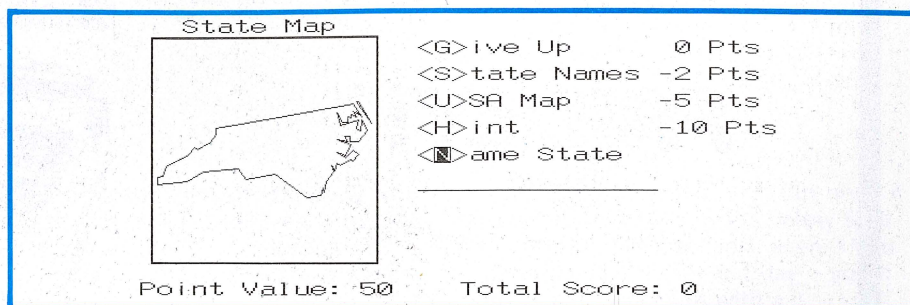
The program begins by drawing ten U.S. States. Each time one is displayed, the player must identify and correctly enter the name of the state. If the player is stumped, he may get assistance from the program, however, depending on the size of the hint, the program will subtract points from the credit you may have accumulated. For each state correctly

identified (and spelled) on the first try, the player receives 50 points.

If a player successfully guesses all ten states in a round without an error or program assisted help, the program will draw a *Certificate of Statesmanship*, suitable for printing and framing.

Upon completing a round (of ten), the program will analyze the results.

Continued from page 37



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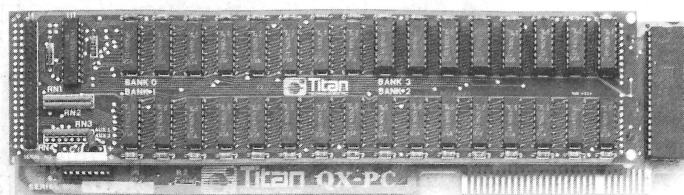
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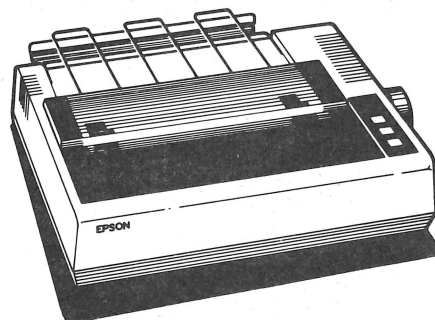
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Managing Your Money

by Steve Stecklow



Product: Andrew Tobias' Managing Your Money Ver. 2.0

Type: Sophisticated home money-management program

Computer: QX-10 w/QXPC, QX-16

Operating System: MS-DOS

Required Peripherals: Printer is suggested.

Price: \$199.95 list

Ease of Use: Extremely easy & menu driven

Performance: Excellent

Documentation: Manual is skimpy but on-screen help is extensive.

Summary: An extremely well-integrated, fun-to-use, and flexible program for financial planning and record-keeping. Workswell on the QX-10 with the Titan QX-PC2 board, and screen graphics are supported in the QX-16.

Manufacturer:

Meca
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Westport, CT 06880
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each time you deposited money, you wrote that down, too. Even without a Ph.D. in mathematics, you usually could figure out how much you were worth.

In these hi-tech times, though, things are not so easy. If you need money, you don't have to go cash a check. You can go to the neighborhood bank machine, insert your card, punch in a few numbers and instantly you have cash. And instead of a cancelled check, you get a little piece of paper, which states a bank balance. Only it's usually not your bank balance. Oh, it may have been your balance two weeks ago. But you've written six checks since, none of which has cleared, not to mention the money you withdrew yesterday. No matter. There's usually a trash basket right there to throw away this worthless piece of paper.

Paying your bills isn't the same, either. The night before the power company is scheduled to turn off your service, you simply call up the bank's pay-by-phone department, punch a few digits in your touch-tone phone and you're set. You don't even have to use a stamp. Of course, it'll take three weeks for the bank to release the money and for this to show on your account.

All of these things are great and make our lives a whole lot easier. Except if you need to know how much money you have in the bank. And unfortunately, these days it is more crucial than ever to know. In the old days, it really didn't matter how much your bank balance was, as

long as it was above zero. But now, if your bank balance drops below \$500 -- even for a millisecond, even if you deposit \$18,000 the next day -- you'll no doubt be socked with a monumental service charge, which the bank will immediately withdraw from your account. You probably won't even know it -- that is, until the next check you write bounces.

Fortunately, there's a modern-day tool to combat such hardships. It can keep track of your high finances, so you'll always know your net worth right down to the penny and avoid being crippled by service charges. No, I'm not talking about a \$5 calculator (although that could probably do the job, too.) I'm talking about your \$3,000 computer.

Of course, you'll need the right software, and there's a lot of it out there, all allegedly designed to keep track of your fortune, simply and efficiently. I've tried a few of them. There was Home Accountant Plus, a best-selling program so slow that by the time you've reconciled your monthly bank statement, two more have arrived. There was a free public domain program that I was told was terrific, only it came with no instructions.

Then I found "Managing Your Money."

This is a menu-driven, integrated program in the style of Valdocs, only even more user-friendly. It runs well on the QX-10 with the QXPC2 board (except for the graphics which only work on the QX-16) and is actually

A long, long time ago, back in the days before fancy automated teller machines and pay-by-phone banking, keeping track of your bank balance was relatively easy. When you needed money or had to pay bills, you used pieces of paper called checks. Each time you wrote one of these checks, you took note of it in a booklet filled with lines called a check register, and

February 1986

fun to use -- even if you don't have lots of money (if you have trouble getting the program to run, just call Meca's toll free customer service line. The company is very cordial to Epson owners.

The program is fashioned like a book, with an introduction, eight chapters and an index. In addition to being able to keep track of your bank accounts, you can track your stocks and investments, estimate your income tax, perform sophisticated financial calculations, analyze your insurance needs, maintain a card file, and create reports of your net worth. You can even calculate what the chances are of your dying in the next year. You may not want to know that, or for that matter, use all of the modules (just like you may not use the SCHEDULER in Valdocs), but they're all nice to have.

The chapter that I use most of the time is Budget and Checkbook. This module will keep track of numerous checking, savings and money market accounts, your credit cards and your household budget. It also will print checks, if you order the right forms.

In the checkbook section, numerous check entries are shown on a single screen. Not only does it make things easy to look up, but it allows you to reconcile a bank

statement in minutes. It used to take me at least a half-hour for this chore with Home Accountant Plus. With Managing Your Money, it takes 10 minutes or less. And so far, the statement has always agreed with the program.

Managing Your Money also understands the vagaries of automatic teller machines, so it knows not to alter the check numbers each time you make a deposit or withdrawal. It also takes care of bank-by-phone payments.

The budget portion can be as simple or as sophisticated as you like. I'm not one for tracking where every single penny I spend goes, but if you're meticulous, you can really go wild here. The program, however, does not require you to allocate each expenditure to your budget.

You can easily transfer money between accounts, program automatic payments for regularly scheduled bills, and add or change something while in the midst of reconciling your bank statement.

If at any point in the program you're stuck, you simply hit the MAR REL key and help will appear in a window on the screen. It is usually extensive and of times, humorous. Andrew Tobias, a well-known author and financial adviser, has done an

excellent job in explaining complicated financial terms, and the program usually leads you along by the hand.

In contrast, the manual that comes with the program is pretty skimpy and not much help. However, Meca maintains an 800 customer service line and I've found the representatives helpful.

As I've mentioned, Managing Your Money does a lot more than keep track of your bank balances. There is a Portfolio Manager to see at a glance how much you're making or losing on the stock market. Within seconds, you can get annual appreciations and reminders of when to sell, as well as capital gains analyses (whatever they are). I recently decided to accelerate my mortgage payments based on some complicated calculations using the Financial Calculator. I was able to determine how much extra money I would earn if I started adding \$50 each month to my payments, and sold my house in eight years -- versus what I'd earn if I deposited the \$50 each month in a savings account. In about 15 seconds, I learned that I would have to earn at least 11.5% interest to be ahead, a rate that's pretty hard to find today. This was the kind of calculation that made me glad I had a computer.

The program also has a built-in, pop-up calculator that you can use to insert numbers wherever necessary--sort of like the one they got rid of in Valdocs 2.

The real advantage of a program like Managing Your Money is at tax time. As with other money management programs, you can print out lists of say, all of your tax deductible expenses (assuming you've marked them). You can even print out a complete Schedule D, as well as other reports.

In conclusion, it is important to recognize that any money management program is only as good as the time you spend with it. Unless you're disciplined enough to type in your expenses and other data on a regular basis (Tobias suggests doing it about once a week), it won't really help you. To its credit, Managing Your Money is so easy to use and, at times, fun, that I've found that inputting transactions really isn't that much of a chore.

Yes, thanks to Managing Your Money, now for the first time I know exactly -- to the penny -- how much I'm worth.

Not enough.

Steve Stecklow is a reporter with The Philadelphia Inquirer and president of the Philadelphia-Area Epson Users Group.

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Additions to The VALDOCS+ Release

by Ralph G. Ruh

With the RSI upgrade release schedule, and the printing and production time for this magazine, Valdocs+ owners may already have received a newer update (scheduled for release in January). The upgrade released at the end of November contains many new enhancements to make life at the keyboard more enjoyable. Most of the known bugs have been removed (see side note on ERROR 16). The purpose of this article is not to go into a detailed description of the power of The Valdocs Environment, but to point out the new power and cost effective nature of this evolutionary product. The modules effected by the November release are the EDITOR, SPREADSHEET, COPYDISK, SCHEDULER, DRAW, MAIL and CONVERT. We will focus on the EDITOR and SPREADSHEET for this article.

EDITOR

The following new features have been added to the EDITOR as requested by many users:

DRAFT MODE - This new feature is an "almost what you see is what you get" mode of editing. It is entered by going to the EDITOR, and pressing SHIFT-EDIT (on the newer keyboard), or CTRL-SHIFT-WORD (on either keyboard), and exited by pressing CTRL-SHIFT-W. Draft mode permits you to move swiftly through your document. Simple keystrokes such as CTRL-Z will move you to the end of your document in a blink of an eye. New single-key operations such as INSERT DATE (SHIFT-CTRL-D), INSERT TIME (SHIFT-CTRL-T), COPY BLOCK (SHIFT-CTRL-K), RELOCATE BLOCK (SHIFT-CTRL-R) and ENTER A PAGE

BREAK (CTRL-RETURN) have been added to allow for convenient "Cut and paste" editing. This allows one to quickly move material around prior to the final touches. Many have complained about the time required to move around in a large document. With draft mode turned on the above actions are almost instantaneous regardless of the size of the document. To speed up draft mode, some of the editor features are temporarily eliminated. Page and Line counters are not indicated, the document is not re-formatted as you go along, and block moves do not cause other text to be re-formatted, however turning off draft mode will bring all these functions back into action.

OTHER PLACEMARK - This is a nifty new feature which allows you to place invisible placemarks in your

ERROR 16

Posted on the EpsOnLine SIG of CompuServe. For those of you technically oriented, the new Word processor files structure stores in each 512 byte block how many bytes are still available for use. If this number exceeds 508, which is the maximum, then error 16 is reported. For those of you NOT technically oriented, just consider error 16, everyone's least favorite error, and it means that some (or all) of your current (working) document is going to be lost. We are constantly working to make the error recovery routines as successful as possible.

This damage can occur from 3 sources, while reading the information off of the disk, while writing the information to the disk, and while the information rests in the word processor's buffer pool. The first two would be the fault of bad hardware (clean your drives lately?) or the operating system. The last area is my domain, (Greg is responsible for the work on the EDITOR module for Rising Star Industries) unless I'm February 1986

zapped by an interrupt or something. I personally feel that it is something "lurking" in the word processor and would like to enlist your aid in finding it. I know of no other serious problem in the system besides this one. Unfortunately, I have never seen the problem, and it is infrequent enough that many others also never see it, or fail to report it.

Some suggestions:

- 1) When powering off...First select the control M <C>hange data disk or <L>og in different drive function. When they tell you it is safe...then power down. The editor's auto-backup is 90+% reliable but there are windows where it could be doing some background processing and a power down at the wrong time could be nasty. On normal power down, why take chances?
- 2) Report everything you can about this bug to RSI. If you see it, DON'T TRY TO RECOVER, chain

out to Menu, then to copydisk and Rename (don't delete) your current working document to some innocuous TPM name. Send a copy of this file with all the circumstances surrounding its appearance to RSI. Then return to the word processor and try to type in some words and about six Carriage Returns (CR). Now up-arrow a few times so that you are resting on a blank CR line with at least one blank line above and below you. Now try to retrieve the file via the control-Q menu. If another "Error 16" occurs press undo at this time and try to recover. You should (no guarantee however) recover more data, and RSI gets some valuable info to track down this villain!

Valdocs+ tip:

Bill Stoebig in the EPUG Newsletter December 1985 issue. A nice undocumented feature is the ability to swap data disks while in the INDEX module by merely depressing CTRL M.

document that you might want to jump to later for reference or edit. This type of activity is very fast while in the DRAFT MODE. CTRL-J will set a placemark, and two different placemarks can be set with it, while CTRL-TAB-REL will clear them.

THE QUIRKS MENU - Two new options have been added to the QUIRKS MENU in its <C>onfigure Editor option. Visible page breaks have been re-added to the Editor and can be turned off or on as you desire. The line spacing display can also be turned on or off as desired.

ERROR HANDLING - Background or "Behind the scenes" work has been done in a couple of very important areas, such as 'disk full handling' and 'Error handling'. These areas have been greatly improved upon, although there continue to be those who experience ERROR #16.

SPREADSHEET

SIDEPRINT - A number of very nice features have been added to the Spreadsheet. The single most important one to me was the addition of 'Sideways Printing' (available from the PRINT MENU). This new feature alone saved me the cost of

purchasing a wide carriage printer to handle spreadsheets I recently prepared for my annual meeting. To operate this option there are two new files; SIDE.SYS and SIDE.STL which must be placed on the SYSTEM DISK. In addition, two new functions have been added to the Calculations and functions menu. They are <F>inancial Functions, which provides Present Value, Future Value, Payment and Net Present Value; and <S>tatistical Functions, which provide Standard Deviation and Variance. You may now also Store a block or portion of your spreadsheet for later use from the CTRL-B (Block) menu.

QUIRKS - This menu has been added to the Spreadsheet, and provides features similar to ones in the Editor: TPM directory, Log in a different drive, Retrieve and Store Non-Indexed file, and Optimized from Storage. This last feature is worth exploring, it restructures and compresses the spreadsheet being stored, and will also recover and correct file errors encountered.

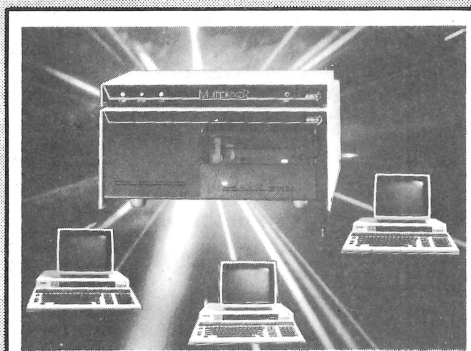
RETRIEVE - A handy feature is found in the new RETRIEVE menu. You have the ability to add new values to old values, copy the new data over the old or subtract the new values from

the old ones. These new features are very helpful when combining old spreadsheet information with new data to maintain running totals or combining quarterly amounts, which I found very useful in my annual meeting presentation. It saved hours of work setting up new spreadsheets for quarterly reviews.

MAIL - A new feature in the MAIL module is the option to send the same item to several individuals without having to select it each time.

This skims the surface of the new additions to Valdocs+. When you add to this, the ability to pass information from the spreadsheet to the editor and to the DRAW module, and from VALPAINT to the EDITOR, you can at last fully realize the extraordinary power of the Valdocs Environment. No where in the 8-bit micro world can you find the equivalent power and flexibility of the combination of the Epson QX-10 and the Valdocs Environment. Even in the so-called 16/32-bit arena the equivalent software would cost twice or three times the cost of the Valdocs Environment. It is great to be receiving the benefits of a software product which is evolving, and which is being designed around the expressed needs of the users. ■

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Printers and Your Valdocs 2

Tips from Epson & RSI

The following information has been provided by Epson Systems Support Group. They are not guaranteed to work in every instance.

Printers and Valdocs 2

The LQ-1500, and a cut sheet feeder printer.

SETUP.

Printer type: <J>LQ-1500
Auto LF after CR : <N>o
Unprintable lines: 5 (0-7) at TOP
Buffered printer : <N>o
Paper Supply: <C>ontinuous form
Cut sheet feeder : <Y>es

When you press PRINT to print a file, or use the CTRL-P menu, set the following:

<T>op margin = 07 lines
<H>eader starts on line 06 of 07
<E>nter header text
<P>lace header

When the unprintable lines are set to 5, these CTRL-P settings are automatically set for you, and should not be changed.

If you have header text entered and you enter 00 to suppress printing, the <T>op margin of 07 will be added to the unprintable lines of 05, resulting in an excess top margin when it is printed. To control printing of the header text, choose <E>nter header text, and type the text you wish to print. If you do not want to print any header text, do not enter or delete header text.

ottom margin=04
<F>ooter starts on line 00 of 04
<E>nter footer text
<P>lace footer

To print 55 lines and align the print out with the editor screen's page break, change the ottom margin to 4 lines.

To print the standard page number enter 00, and to enter the Footer text February 1986

enter 01 for the <F>ooter starts on ...

Valdocs 2 and the ComRiters CR-II, CR-IIe, CR-III, CR-IV with cut sheet feeder.

SETUP

Printer type: <H> CR-II/III
AUTO LF after CR: <N>o
Unprintable lines: 5 (0-7) at TOP
Buffered Printer: <N>o
Buffered speed: 0 characters per sec.
Paper Supply: <C>ontinuous form
Cut sheet feeder: <N>o

If you select <Y>es to cut sheet feeder the printout will be automatically offset by 8 spaces to the right for the cut sheet feeder. Unfortunately the print out will not adjust the underline, page numbering, and headers and footers, so they will print 8 spaces to the left. You can DESELECT the cut sheet feeder and adjust the margins in the CTRL-P menu within the editor. For the cut sheet feeder, select:

<L>eft margin 01.75 inches and
<R>ight margin 07.75 inches. Note: It is best to adjust the margins prior to typing the document.

The values automatically set in the CTRL-P menu are:

<T>op margin=07 lines
<H>eader starts on line 06 of 07

If you have header text entered and you enter a 00 to suppress printing, the top margin (07) will be added to the unprintable lines (05), resulting in an excess top margin upon printing.

To print 55 lines and align the printout with the editor screen's page break, change the ottom margin to 4 lines. Notes: If you print out a document that includes italics in it, the ComRiters will ignore them and print normal. If you have a sheet feeder, centered title, or italics at the beginning of a line, the italicized words will be printed normal with underlining. It is suggested you turn italics OFF if you have a problem.

The ComRiter will ignore type size changes and print out in normal, beware of margin changes in this case.

If you have different line spacing changes throughout a multi-page document, your editor's screen page breaks may not line up with the printer's page breaks. The only solution is to establish where the printed page breaks occur, and then re-edit the document if they are unacceptable.

Valdocs 2 and the DX-10/20

SETUP

Printer type: <H> CR-II/III
AUTO LF after CR: <N>o
Unprintable lines: 0 (0-7) at TOP
Buffered Printer: <N>o
Buffered speed: 0 characters per sec.
Paper Supply: <C>ontinuous form
Cut sheet feeder: <N>o

If you would like the continuous-form paper or have single sheets of paper to line up at the printer's paper guide bar, change the Unprintable lines to 5. If you have single sheet paper, then change the paper supply to <S>ingle sheet.

The DX-20 is the same as shown for the DX-10, except for the printer buffer and speed selections. Set them up as:

Buffered Printer: <Y>es
Buffered speed: 30 cps

ERROR MESSAGES V2

Can not print this Document! Last print request aborted!

If you try to print a 1.X Valdocs document before converting it to the 2.0 format you may get this message. You must RETRIEVE and do the Valutil conversion to place it in the Valdocs 2 format prior to printing it out (or use Valdocs 1.X to print it).

Not enough disk space for conversion.

When converting Valdocs 1.X indexed documents into the 2.0 format, they will take up more space. A one-page document in Valdocs 1.X takes up about 2K; in the Valdocs 2.0 format, the same document is about 6K (the minimum file size in Valdocs 2). This increases about 4-6K for each additional page of plain text with no typestyle or format changes. A one page document with typestyle and format changes could conceivably take up 100K. You will need to remove some of the files from the disk before you can continue. Use Valdocs 1.X to delete some of the indexed files, or index copy the ones you wish to convert to another disk, and then proceed with lutil and Valutil.

Software Critics Agree

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The Word Processing Book
- "SmartKey is a utility I recommend..."
...The result is less frustration and greater speed and accuracy in entering data."
John D. Yoder, PhD
Reviewer — Epson Connection
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Bob Hermann
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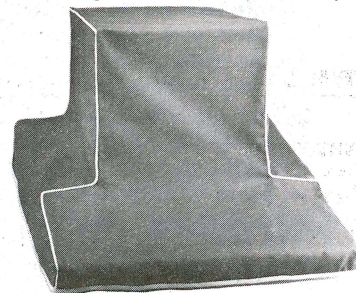
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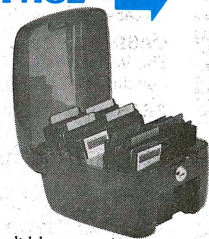
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ZCPR3

A Mainframe-like Operating System for Your Z80.

By Allen Howell

Some Background:

The stock CP/M operating system is perhaps one of the most primitive operating systems still in use today. With only six built in commands, CP/M is not very efficient or practical for the serious user/hobbyist. There are cassette tape based computers that have more commands than CP/M.

Why then is CP/M so popular? Mainly because of its portability. Almost any 8-bit computer can run it. This opens up a broad market for commercial and public domain software. A program written for CP/M on a Kaypro computer will also run on the Osborne, Zenith, Morrow, and Epson 8-bit machines.

Another reason for CP/M's popularity is familiarity; it was one of the first DISK Operating Systems for microcomputers. Thirdly, it provides some powerful disk manipulation subroutines, or what are also known as "system calls". These "calls" are always the same on all computers that run on CP/M, giving it real portability. The "calls" also make programming in CP/M assembly language easier for the programmer. Many of the functions that a programmer would normally have to write from scratch (keyboard input, screen displaying, disk reading and writing, and printer output) were already built into CP/M's operating system, thus decreasing the programmer's workload.

Why, then, is CP/M considered "primitive", given its portability and powerful system calls? The programming environment isn't the real problem. The problem exists with the user interface, which is the CCP (Console Command Processor) within CP/M, the module with which you as the user must communicate. The CCP

knows only 6 commands, of which only about half are understood and utilized. These commands are DIR, ERA, REN, TYPE, USER and SAVE. That's it.

Users who are new to computers really don't know what to expect from an operating system (much less know what it is or what it does), and the six commands available within CP/M's CCP are probably complicated and mystical enough for them to want to try to avoid CP/M as much as possible. Furthermore, once a user becomes familiar with the commands, their inadequacies become painfully apparent. Many old-timers who are familiar with mainframe operating systems would rather subject themselves to the Chinese water-drop torture than cope with CP/M's crude environment.

Some of the functions that are desirable for operating systems include password protection, named directories (tree structure), error handling, multiple access levels, shells (Menu's), and batch processing. Until recently, such an environment was not available with machines that ran exclusively on CP/M.

Realizing the limitations of CP/M, a fellow named Richard Conn and a clan of followers spent several years developing a CP/M compatible operating system for the Z80 and called it ZCPR, which stands for Z80 Command Processor Replacement. There are 3 different versions of ZCPR. Version 1 was reviewed in our May 1985 issue. It added 5 new commands to CP/M's CCP, and greatly enhanced some of the existing commands. Version 2's main enhancement was the elimination of the USER command, and its replacement with a direct drive/user

area command syntax exactly like TPM's (e.g., entering "B5:" would log you into user area 5 of the B drive).

By 1984, ZCPR3, the most recent and most mature version began finding work in many CP/M machines in home and business environments.

ZCPR3

Programmers and business owners who have several users on one computer system will probably benefit the most from ZCPR3.

For the business owner, through ZCPR3, one can configure a computer to be very user-friendly by utilizing shells and menu programs. Also, passwords can be placed on any drive/user area, thereby creating a "secure" system. ZCPR3 also supports a HELP command, which displays on-line help concerning any aspect of ZCPR, utilities or programming languages.

ZCPR3 contains several utilities that make life much easier for the programmer. Error handlers allow for easy correction of invalid command syntax. Batch processing is more efficient than CP/M's SUBMIT.COM program; it supports IF statements, nested batch processing, and the amazing ALIAS utility. PATH allows the user to define the default drive/user area for command searches. The semi-tree structure of ZCPR3 directories gives the user more efficient control of files -- especially the hard drive owner.

ZCPR3 supports three types of commands prompts. With typical CP/M, the command prompt is a rather vague ("A>" or "B>" prompt), which only defines the logged in disk drive. ZCPR3 further allows the user area to be specified alongside the drive designator (e.g., A0>, B6>,

M15>, etc.). The most significant aspect of the ZCPR3 command prompt is that it allows you to assign actual names to any drive/user area (e.g., you may assign the name "SYSTEM" to drive A user area 0 resulting in a prompt that looks like this "A0:SYSTEM>"). Any alphanumeric word of fewer than 8 characters may be assigned to any drive/user area. The advantage of this is obvious; you no longer need to rely on an index card taped to your monitor to remind you what is in what user area. Simply type in the name of the area you wish to enter, followed by a colon, will log you into that area. If you are in B1: and wish to go to A0, just enter "SYSTEM:" (assuming A0 is named SYSTEM) and ZCPR3 will take you there. The third and final form of the command prompt is simply a prompt name. This is the same as the previously mentioned method, except without the drive/user area (DU) designator. If A0 were named SYSTEM, and if you have disabled the DU form, then the prompt would look like this - "SYSTEM>".

Passwords may be issued to any named user area. If you were to create a named directory on D7 called SECRET, then all users who attempt to access this area would also have to know the password assigned to SECRET in order to gain entry. Note that password protection is available only when the named directory command prompt is used WITHOUT the DU designator; otherwise, users could simply enter "D7:" to access the area. The DU form does not support passwords.

A Wheel

A "wheel" in ZCPR3 is the user who makes things happen within the ZCPR3 environment. A ZCPR3 "wheel" user is basically on the same level as a system manager of a large mainframe computer.

Wheel users are responsible for the configuration, security, and maintenance of the ZCPR3 system. There are several programs within ZCPR3 that may be executed only by the wheel user -- commands such as MKDIR, PWD and ALIAS. To become a wheel, the user must execute the WHEEL utility and enter the wheel password. If successful, then the user can run all wheel utilities.

These commands are basically for the wheel user:

Command	Description
WHEEL	Allows the WHEEL user to log in.
PWD	Displays the names of all the named directories.

MKDIR

PATH

Displays passwords if you are the wheel user and the P option is used. Allows for the creation, modification, and/or removal of named directories. Allows wheel to change the default command search path. As a default, A0: is the default user area. PATH allows this default to be changed to any drive/user area.

Command Lines and Batch Processing

Unlike CP/M, ZCPR3 allows users to enter more than one command on a single command line. As long as all commands are separated by a semicolon, up to 255 characters worth of commands may be entered in a single command line. An example of a multiple command line might look like this:

```
A0>dir;ren
myfile.txt=myfile.bak;dir;era
*.bak;dir
```

Users who perform the same series of commands on a regular basis may utilize the ALIAS utility. ALIAS creates a .COM file that will execute the commands you store within it. For example, the above series of commands could be placed in an ALIAS called DO.COM. Then, whenever DO.COM is executed, it would perform the commands contained within it, commands which the user specified upon creation of the ALIAS.

ZEX is a memory based batch processor similar to SUBMIT, except ZEX is much more powerful. ZEX contains XSUB.COM type functions. It can be executed with .SUB files, or interactively. Since ZEX is memory based, it can jump from one user area to another without getting lost, like SUBMIT and SUPERSUB do.

The IF command allows the user to utilize conditional submit files. The IF command supports T and F (true and false), EMPTY (if the file is empty), ERROR (if ZCPR3 error flag is set), EXIST (if the file exists), WHEEL (if the user is the wheel), and other IF conditions that make submit files programmable.

These utilities make batch processing extremely efficient. CP/M's SUBMIT.COM and XSUB.COM seem as primitive as bows and arrows once one is accustomed to ZCPR3's batch processing utilities.

Other Features

ZCPR3 supports several error handling packages. Each package contains it's own unique

characteristics. The primary function is to inform the user of any syntactical or logical errors in an ALIAS, SUB file, or in the direct input on the command line. With typical CP/M, if a user enters a non-existent command or .COM filename, CP/M will simply re-display the erroneous input followed by a question mark. Not very sophisticated at all.

ZCPR3 has four ways of handling errors: ERROR1 and ERROR2 handlers will display the invalid command, then prompt the user for one of four options: 1) replace the command in error with a new command, 2) skip the command in error and resume execution with the next command, 3) replace the entire command line, or 4) throw away the command line and resume user control. ERROR3 and ERROR4 do not allow the above options. If the ERROR3 package is being used, then the command line and any other commands that may be remaining in the buffer will be aborted, and control will be returned immediately to the user. ERROR4 will automatically skip the invalid command and resume with the remaining commands (if any exist).

SHELLS are basically user interfaces, other than the actual operating system itself, which allow the user to perform a wide variety of DOS functions or to run programs. MENU. EPS.COM, and INDEXER.COM may be considered shells within the CP/M B2.25 operating system. Even Wordstar may be considered a shell, since several DOS commands may be performed from Wordstar (erase and rename file, or run other programs). ZCPR3 contains three shell programs. SH is the most complex. It is pretty much a transparent shell in that the ZCPR3 command prompt is still visible, and almost all of the ZCPR3 commands that are entered through it will execute as normal. Most significantly, SH allows the user to utilize named variables, in a manner that is similar to CP/M's SUBMIT.COM which allows up to 9 variables for filenames.

VFILER is a shell utility very similar to CP/M B2.25's INDEXER program, which displays the contents of a directory on the screen and allows the user to use the arrow keys to manipulate files.

MENU and VMENU are extremely versatile shell utilities that allows the wheel user (or any user) to create a menu driven environment for other users of the system. The creator of these menus has practically unlimited control of how he wishes the menus to appear, and what functions they are to perform.

Other commands and their functions within ZCPR3 are:

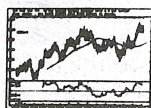
CP	Built-in COPY command. Similar to PIP.	DIR	Displays disk directory.	Z3LOC	Locates and displays the address of the running ZCPR3 CCP, BDOS, and BIOS.
ECHO	Echoes any following text to the CON: or LST: device.	DU3	Disk utility.		
ERA	Erases files.	ELSE	Used with the IF utility in batch processing.		
LIST	List files to the LST: device (printer).	GET	Loads a file into memory without executing it.		
NOTE	Prefix for comment lines.	GO	Executes the memory contents starting at 100H.		
P	Displays HEX and ASCII values of memory.	GOTO	Branch statements used with the ZEX batch utility.		
POKE	Allows direct alteration of memory.	HELP	On-line HELP utility.		
PROT	Similar to CP/M's STAT.COM, except this command only sets CP/M file attributes i.e. R/W, R/O, \$SYS & \$DIR.	JUMP	Jump to a specified address in memory.		
REN	Allows files to be renamed.	MU	Memory editor.		
TYPE	Displays the contents of a file.	PAGE	Displays files to the screen.		
CD	Change directory.	PRINT	Prints files to the printer. More options than LIST.		
CLEANDIR	Physically alphabetizes and re-organizes disk directories.	RECORD	Allows console or printer output to be recorded in disk files.		
COMMENT	Invokes a CHAT mode.	SAK	Pause utility.		
CPSEL	Console/Printer selection utility.	SAVE	Saves memory contents to disk file.		
CRC	Computes CRC value of files.	SHOW	Displays ZCPR3 environment.		
DEV	Allows display and re-direction of system peripherals.	SUB	Another type of SUBMIT utility.		
DIFF	Compares two files.	XD	Extended disk directory utility.		
		XDIR	Another disk directory utility.		
		XIF	Negative IF for batch processing.		

These are most of the commands available, yet there are still a few other minor utilities or equivalent commands that are not listed.

ZCPR3: Manual Install vs Auto Install

ZCPR3 is a very complex and sophisticated operating system. To integrate ZCPR3 into most run-of-the-mill CP/M systems requires a lot of time, experience, and knowledge in assembly language. It also requires that you have the source code listings of your CP/M system, particularly the BDOS and BIOS. Unfortunately for the QX-10 or 16 owner, even if you know assembly language, unavailability of the CP/M source code may very well hamper any hopes of manually installing ZCPR3 to your specifications on your computer (unless Epson America soon releases it to the public).

ZCPR3 is a both versatile and flexible. Most of the utilities covered were designed to be integrated into ZCPR3's CCP, where they would become permanent resident



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LetterWriter

by Bob Hermann



Specspot

Product: LetterWriter

Type: Printer control mechanism

Printer: FX-100 or FX-80, or FX+ series (also available for the RX series of printers for \$59.95)

Specifications: Three replacement chips that plug into appropriate slots inside printer.

Price: \$79.95

Ease of use: If you can count to sixteen you can use LetterWriter with no problem.

Performance: Outstanding

Documentation: Good; includes pictures detailing installation procedure.

Summary: This three ROM set allows manual selection of various printer fonts and printer options. It adds a Near Letter Quality print mode that has four times the resolution of the standard draft font. It also permits manual access to the IBM Graphics font and Apple printer emulation.

Manufacturer:

Dresselhaus Computer Products
837 East Alosta Avenue
Glendora CA 91740

LetterWriter is an upgrade of the original FINGERPRINT mechanism from Dresselhaus. It offers the additional capability of a Near Letter Quality font with the loss of the option to disable the paper-out sensor. The convenience of LetterWriter will make some people wonder how they ever managed without it.

Once it is installed you will be amazed at the array of configurations offered. The choices include fingertip control of: NLQ mode, condensed, elite, double-wide, italics, underlining, and fine print modes. You may just as easily elect from: left margin indentation, 8 lines per inch, quiet mode operation, 8 inch wide paper, slash/zero and fine print operation. You may pair various combinations of the above choices. Powering down will reset the printer to its default settings. Selected functions will be turned on and off at will.

INSTALLATION

Consisting of three replacement ROM chips, installation of
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LetterWriter requires no great degree of electronic knowledge. However, if you have never installed a chip before you might be well advised to enlist the aid of someone with more experience, since a wrong move could be quite expensive (the directions contain the following warning: The manufacturer is not liable for any loss or damage, direct, indirect, or consequential, arising from the use of, or inability to use this product). Proper installation of the mechanism will not void your printer warranty.

The installation procedure can be accomplished in five minutes if you have had prior experience 'under the hood' of the printer. With little or no knowledge of electronics, it will not take more than a half hour. If necessary, you may call the manufacturer and have them talk you through the installation. The most difficult maneuver will be encountered on FX printers having what is referred to as the SUMI board. Removal of this board is necessary, and great care is required in aligning the pins properly when it is re-installed. Some models of FX printers require the cutting of a wire or a resistor, making installation of the mechanism more permanent than merely the replacement of three chips.

The instructions direct you to remove the chips from the printer by placing a screwdriver under them and prying them carefully up and out of their sockets. If you have never removed a chip before, it might be worthwhile to go to Radio Shack and purchase an inexpensive item known as a 'chip remover'. Resembling somewhat a set of tongs, this apparatus will significantly decrease any possibility of damage to the printer.

OPERATION

As odd as it may seem, Dresselhaus actually reports more difficulty with operating properly installed mechanisms than installation difficulties. This is not due to any inadequacy in the documentation, which is quite easy to understand.

To initiate the LetterWriter mechanism, simply depress the FF (form-feed) button while on-line and

then with the FF button still depressed, tap the "on-line" button. Two beeps will signal the engagement of the LetterWriter. The printer will simultaneously go off-line. Now the desired functions can be chosen from the sixteen item LetterWriter menu (the included sticker listing the menu should be affixed next to the printer's function buttons). Simply advance down the menu by depressing the FF button. Each depression will produce a corresponding beep indicating that you have moved one position down the menu. When you wish to engage a function hit the LF (line-feed) button (a short beep will indicate that the chosen function has been turned on). Then, either continue through the menu, or depress the "on-line" button, eliciting four beeps, to exit from the selection mode. The "on-line" light will still be off. You will have to depress the "on-line" button again to go back on-line with whatever functions you have elected now activated.

Say you want double strike in condensed print for a disk label. Hold the FF button down and tap the "on-line" button. A beep, beep (or chirp, chirp) will be heard. Condensed is item three on the menu and double-strike is item five. You are now at item one on the menu, so advance to item three by hitting the FF button twice (chirp, chirp), and hit the LF button to activate condensed print (with a short chirp). Then advance to item five by depressing the FF button two more times, and hit the LF button again. Now just hit the "on-line" button twice (chirp, chirp, chirp, chirp), and you are ready to go. These functions will be operative until the printer is turned off or you use LetterWriter to turn them off.

Another option for setting Letterwriter modes is to use the public domain NLQ.COM program written by Martin Walker of Epson Mid America. Besides offering a quick test of the mode selected, this program allows several other handy options, such as reverse line feed.

THE NLQ MODE

This mode produces Near Letter Quality print in two passes of the printhead, thus slowing down the printer considerably to a reported speed of 32 cps. This speed is actually somewhat exaggerated, however, since the printhead makes two passes on each line from the same direction, meaning it has to return all the way across the page after making the first pass.

There were no difficulties encountered using the NLQ mode with Valdoks 2.0. Any superscripted or subscripted characters will (as the

LetterWriter documentation indicates) reset LetterWriter. Italics will print out as normal Italics, but will not reset the device. As you are probably aware, a right justified Valdocs 2.0 document takes forever to print in the draft mode, so you may readily imagine how long it would take in the NLQ mode.

It should be mentioned that some software will send a reset code to the printer, cancelling any modes selected with LetterWriter. To use LetterWriter with software such as this, you can simply wait until this reset code has been sent to the printer, and then initiate LetterWriter.

Another feature of this device is the ability to clear the printer buffer.

Depressing the LF button while tapping the "online" one will cause the printer to read in data and throw it away until nothing is input for two seconds. You may also use this version of LetterWriter to change print types on a line by line basis.

The fingertip control of print styles offered by the LetterWriter mechanism will be useful to anyone requiring such a variety of output. The usefulness and attractiveness of the LetterWriter device is revealed by the fact that a similar mechanism is incorporated in the new series of Epson printers. So if the printer control that it offers (at a fairly nominal charge) sounds attractive, get one and chirp away. ■

Continued from page 24

commands. It is totally at the discretion of the user (or hardware limitations) as to which functions of ZCPR3 he wishes to utilize within his system.

For users who are interested in implementing ZCPR3 in their system, but don't feel qualified to install it manually, a version of ZCPR3 that automatically installs itself on your system is available. This version is called Z3-Dot-Com and is available from Echelon Inc. for \$149.00.

The biggest disadvantage to the auto-install version is that it uses approximately 4k of your TPA, which means many of the CP/M B 2.25 utilities, such as SETUP, COPYDISK, MENUPEPS, SETPLOT, SETPRINT, SETSD, FM, and PFK will not work with Z3-Dot-Com. It also deletes any PFK function keys you may have assigned.. Very few of the commands are built in, but are instead transient commands, typical .COM programs that must be loaded in order to be utilized (like CP/M's PIP or STAT). This aspect is very undesirable in a floppy disk based system, as the ZCPR3 system will probably require most, if not all of the space in your system diskette drive, leaving only one floppy drive for programs and data.

Summary

If you own a hard disk drive and know little about assembly language, but wish to implement the features of ZCPR3, the auto-install version should perform to your satisfaction. I cannot recommend it for the floppy disk based system. Why dedicate half of your computer to managing your computer?

If you stumble upon a manually installed version of ZCPR3, by all means use it, whether you use a hard drive or not. Even though it may have been configured to the installers preference, it should contain most of the major features.

NOTICE: ZCPR3 is and is not public domain software. What does that mean? Generally, it is perfectly alright if you own a copy of it, but you cannot sell it in any way or form without entering into a royalty agreement with Echelon, Inc. The auto-install version is not public domain, so it should not be passed along to someone else.

For more information about ZCPR3, contact:

Echelon, Inc.
101 First Street
Los Altos, CA 94022
Phone: 415-948-3820
BBS: 415-489-9005

The advertisement for 'Fancy Font' features a collage of text samples demonstrating the software's capabilities. At the top, the words 'Fancy Font' are written in a large, elegant script. Below this, various typographic styles are shown, including 'Social Invitations', 'Calligraphic', 'Diplomas', 'Fancy Font', 'Clean', and 'handwritten'. The text is interspersed with various symbols, including crowns, hearts, and mathematical notations. A musical staff with notes is also visible. The overall design is visually rich and demonstrates the high-quality output of the software.

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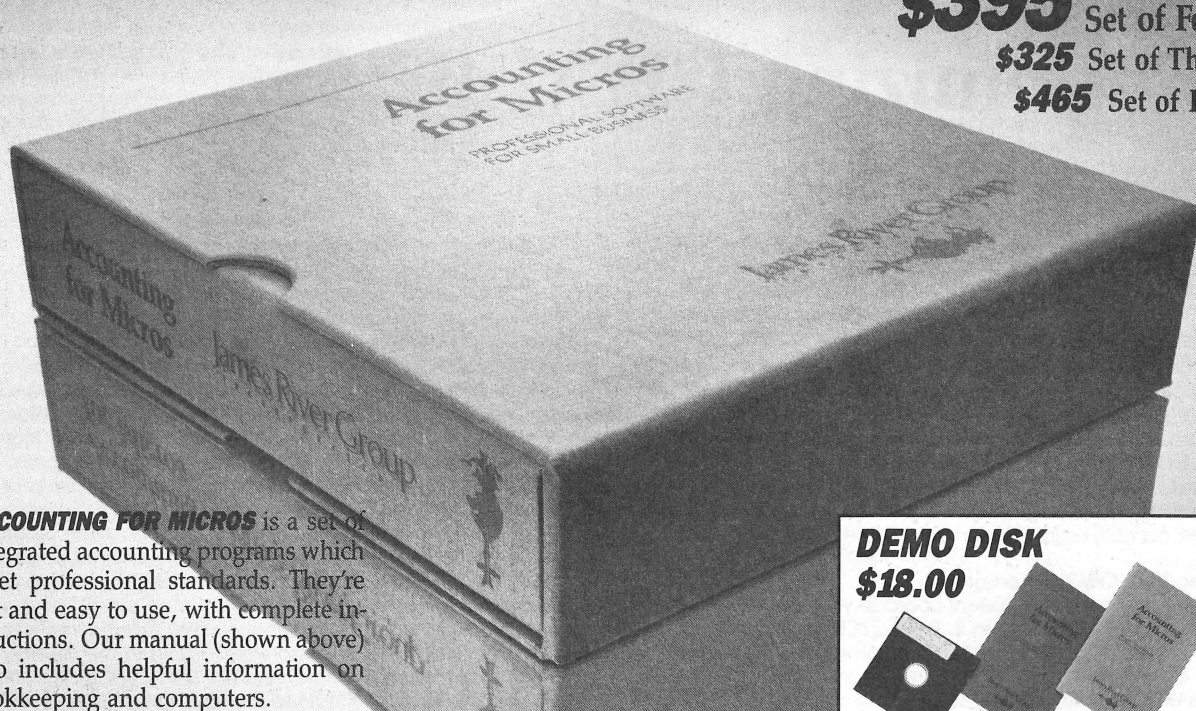
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Customizing CP/M B2.25

by Allen Howell

If you read the ZCPR3 article in this issue but feel that it may be too complicated or bulky for your needs, yet you would like more capabilities from your CP/M operating system, (such as file and program protection or elimination of dangerous commands such as ERA & REN) then read on.

In this article we will explore ways to get the most out of CP/M B2.2x by actually modifying the CPM2.SYS file and by utilizing many of the public domain utility programs available.

Upgrading Your CPM2.SYS program:

Perhaps the single most important upgrade you can make to your CP/M system is to install ZCPR onto it. Briefly, ZCPR stands for Z80 Command Processor Replacement. This program actually replaces part of the CP/M operating system resulting more resident (built-in) commands and versatility without sacrificing usage of any of the CP/M utilities that came with your system, or any other CP/M program.

For more information on ZCPR, refer to the article "ZCPR", page 13 in the May '85 issue.

Although ZCPR is the recommended alternative to make CP/M more versatile, a substitute is available called XCCP*. XCCP stands for eXtended Command Console Processor. XCCP is simply a COM program that may be executed at anytime on your stock CP/M system. XCCP is actually a shell between CP/M and your application programs. It simulates CP/M, however, it adds capabilities such as a 240 byte character buffer, command recall, extended command editing capabilities, command recognition, multiple commands per line, automatic search of disk A user 0 if commands are not found on the logged in disk drive, disk and user specifications may be incorporated in the same command (like TPM), no involuntary warm boots, exit to standard CP/M, and the user number is also displayed on the command prompt.

There are several characteristics that XCCP performs that ZCPR does not, however, XCCP does not allow the use of CP/M's resident commands (DIR, ERA, REN, TYPE, SAVE). Transient clones of these commands must be utilized instead. The XCCP.LBR file includes transient counterparts for the ERA and REN command, but as XCCP's documentation points out, there are numerous DIR and TYPE utilities in the public domain to choose from if you wish to implement XCCP.

Another negative aspect of XCCP is that it sits just below the CCP in memory, and it must reside in memory at all times when you are using it, resulting in approximately a 3k loss of TPA space. Also, XCCP could cause problems with other programs that use CP/M's high memory, which include most of the CP/M utilities on the B release of CP/M.

System Security:

Systems used in a business environment have long recognized the need for some type of "system security"-- an important element that the creators of CP/M 2.2 and even MS-DOS 2.11 failed to act upon.

Unless your system is protected by some means, practically any employee who has minimal knowledge of CP/M can at any time erase any or all of the files you have on your system, using the deadly "ERA *.*" command, or rename files with REN resulting in operator and program confusion. The SAVE command can replace functional files and programs with garbage.

Most operators (note I didn't say "programmers"!) don't use these commands, so why place your files in jeopardy by including these

potentially dangerous commands in your system. In order to do this, you must obtain a "debugger" or "patch" program. CP/M comes with one called DDT.COM (Dynamic Debugging Tool), but unfortunately, it's not at all "user-friendly". It is strongly recommended that you obtain a copy of PATCH18A.LBR, which contains a program called **PATCH.COM** **. PATCH allows you to change the contents of memory, disk sectors, and files (including programs). Why use PATCH? It has the best user interface of any debugger program that I have seen, and it's free. Most any good EpsonNet RBB5 should have it available for downloading. It is also available on EC-15 (Nov. '85 Disk of the Month).

Before you attempt to change the CPM2.SYS file, make sure that your system permits R/W (Read/Write) access to the file. To make a file R/W, use STAT.COM and enter **STAT CPM2.SYS R/W**.

Having obtained PATCH, load it in and select "F" for File. PATCH will ask the name of the file you wish to modify, so enter "CPM2.SYS" (assuming, of course, that CPM2.SYS is on the same disk). Patch will load in the first two records of the file and display the contents of these records in both HEX numbers, and in ASCII on the far right column of the screen. Press the "+" key to page forward in the file until you see the commands DIR, ERA, SAVE, TYPE, REN, and USER. When you have found these, press the "E" key to enter edit mode. The cursor will move to the upper left corner of the screen. Now press CTRL-A to move to the ASCII field. Then use the Wordstar diamond (CTRL-E, S, D, X), position the cursor over the top of the uppercase letter "E" in the text ERA. Now, replace this letter with a lower case "e", and presto, the command has been disabled. Do the same thing with the SAVE and REN commands, replacing the first letter of each command with a lowercase "s" and "r", respectively.

Other commands may also be disabled by this means, however, TYPE, USER and DIR are not potentially destructive commands.

Once you have completed your modifications, press CTRL-Q to exit EDIT mode, and press "W" to permanently write these changes to the file. Press "Q" twice to exit back to CP/M. Note that the commands you altered will not take effect until you cold-boot the system.

As you may or may not be aware, CP/M always converts all direct input to upper case before it executes the command. Now when the ERA command is attempted, the system will search through it's resident commands for the text "ERA", but since we have changed it to "eRA" (note the lowercase "e"), the command will be ignored.

"How then", you ask, "do I erase or rename files should the need arise?" Simple. Use the INDEXER.COM program to perform these functions. "But doesn't that defeat the object of disabling the commands in the first place?" Not necessarily. There are several ways of keeping INDEXER.COM or any other program from being executed by unauthorized personnel. Using CP/M's STAT.COM program, you can make files invisible so that they do not show up when a DIR command is performed. At your system prompt, enter "STAT filename.ext \$SYS" where "filename.ext" is the name of the file you wish to make invisible. But, there's a catch. Even though the program is invisible, it can still be executed if the filename is known. Again, the solution is simple. Simply use INDEXER to rename the program to your liking, then make it invisible. As long as you do not disclose the name of the hidden program, nobody will know it's on your disk. Ah yes, there's yet another catch! Even though invisible files are not disclosed by the DIR command, they can be seen by using the "STAT *.*" command. All invisible files are displayed with

parenthesis around them. The solution to this? Just do the same thing to STAT.COM as you did to INDEXER.COM; rename it to something only you will know, and then make it invisible also.

This protection scheme should be sufficient for most systems, however, it's not foolproof. If you leave a copy of an unprotected CP/M system disk lying around, other users can easily use STAT or the INDEXER utility from that disk to see your files.

A problem with this security system is that it makes more work for you, the owner of the system. You'll have to memorize the names of all your "hidden" files and remember what each one does. Owners with less internal storage in their heads will rely on such off-line devices as an index card or scrap piece of paper to remember this information and if information like that happens to be lying around in view of undesirables, you again defeat the purpose of the protection.

System Security using Public Domain Utilities:

Using some excellent programs that are available in the public domain, you can easily protect your programs from being executed by anyone but yourself. Our Jan. '85 issue featured an MBASIC program that was capable of patching any password you specify on any .COM program. **LOCKDEMO.LBR ****, also available on the Disk of the Month, EC-15, can also place passwords on .COM programs. When these password programs are run, they ask you to enter the filename of the program to protect. Once you specify the filename, the system prompts you for the password that will be required to access the program. Once the password is entered, the password program will physically modify and store the password in the .COM program. Then when you exit back to CP/M and execute the password protected program, your program will show a new face and request entry of a password. Your keyboard input is not displayed onscreen, (thereby preventing anyone who may be looking over your shoulder from seeing your input on the screen), and when the password is correctly entered, your program will proceed as usual.

The major advantage of this type of security measure is that all your programs may be visible on your system so that you can easily identify and utilize them. Also, you may use the same password for all your programs, eliminating the need to memorize multiple filenames.

If you require file protection as well as program execution protection, there are many public domain scrambler programs available to protect readable ASCII data files. For instance, if you kept your payroll system on your computer, you may be able to prevent unauthorized personnel from executing the program, but how can you prevent users from simply using the TYPE (or PIP, or any other file display utility) command to examine the contents of related ASCII data files. One public domain program that prevents this is called **LOCKER.LBR ****. It physically scrambles ANY type of file or program. Encryption keys (passwords) must be assigned when files are scrambled, and the same keys must be used when a file is de-scrambled. If a user attempts to view a scrambled file or program, the file will inform the user that the program has been locked and cannot be used until it has been unlocked.

Utilizing CP/M's User Areas for More Protection:

CP/M's **USER** command is probably the only frill command built into the operating system. Each logical drive of a CP/M system includes 16 user areas (0-15), each of which may be used to store different types or categories of software. Systems running on hard drives commonly assign user areas to specific individuals. This allows users to share the hard drive without interfering with each others directories.

The only problem with utilizing user areas in a business environment is the lack of security. All users are able to visit on each other's user area. The security solution lies in yet more public domain programs.

U.COM ** is a small program that works exactly like CP/M's **USER** command. "Then what advantage could be derived from it?", you ask. Applying some information presented in previous paragraphs you can see that if CP/M's built-in **USER** command were disabled (using the same procedure used to eliminate the ERA command), and if a password were placed on the **U.COM** program, then access could be limited to user areas 1-15 of your disk only by users knowing the password. This scheme works well for systems serving only two classes of users, but if several levels of security are needed then a different utility must be used.

USERPW37.ASM *, a program written by Dave Hardy of Detroit, allows you to authorize access to any number of user areas to a practically unlimited number of users. Once **USERPW37.ASM** is assembled, CP/M's **USER** command must be disabled, and

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USERPW37 must be renamed to **USER.COM** and stored in user area 0 of your system. The system manager must then create a file in A15: called **PWFILE**, in which the access passwords and user number authorizations are stored. An example of the **PWFILE** might look like this:

```
ROOT,0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15
CAR,0,1
QXUSER,0,2,8
TOPDOG,0,1,2,3,4,5
```

This **PWFILE** contains 4 user passwords, each with their respective accessible user areas. The user who has the password **ROOT** has access to all areas; **CAR** is allowed user areas 0 and 1 only, and so on. The **PWFILE** is a sequential file, thus it can contain practically an unlimited number of passwords.

When a user wishes to enter a different user area, he simply enters "USER x" (where 'x' is the number he wishes to access), then the **USER.COM** program will ask the user to enter a password. If a valid password is entered, and if that password has access to the user area defined, then access is granted.

SECTION.ASM * is another replacement for CP/M's **USER** command written by Ron Fowler of Westland, MI. Although it does not contain any security provisions, **SECTION** is different in that it allows you to access users areas by specific names rather than cryptic drive and user area designators.

If section-name is omitted, a short list of available sections is printed. The special form "SECTION ?" prints the detailed description of each section.

You have to fill in the sections table (located near the end of the program) for your particular system.

Examples of use:

```
A0>SECTION UTILITY      ;changes drive/user to utility area
B4>SECTION MBASIC      ;changes drive/user to mbasic area
A6>SECTION              ;prints short list of sections
A9>SECTION ?            ;prints the detailed list
```

System Utility Replacements:

Public domain versions of many of the utilities that come with CP/M have been created. As you have already seen, the **USER** command can be replaced with **USERPW37**, which allows user area control. Some of the utilities which can be replaced include **DIR**, **PIP**, **TYPE**, and **SUBMIT**. Also, by adding a couple of print utilities you can improve both the performance and looks of your printer output.

DIR Replacement:

Using stock CP/M, the only way to examine the size of your files is to use the "STAT *.*" command. Since **STAT** displays only one file per line, some of the information will not fit on one screen display. Wouldn't it be nice if the **DIR** command would display file sizes as well? **D.COM *** is a program that does just that. Here is an example of output produced by **D.COM**:

d	Name	Ext	Bytes	Name	Ext	Bytes	Name	Ext	Bytes	
AUTO	SUB	8K	: LOCATE	COM	8K	: REDO	BAS	8K	: SEMIDISKPRN	OK
BUILD	SUB	8K	: QTEST	ASM	24K	: SEMIDISKASM	48K	: SEMISPOOL	OK	
CHOP	BAS	8K	: QTEST	COM	8K	: SEMIDISKCOM	8K			
DRIVER	ASM	32K	: README	DOC	8K	: SEMIDISKHEX	OK			

14 File(s), occupying 168K of 3224K total capacity
863 directory entries and 1088K bytes remain on A:
A1>

Unquestionably much more informative than what the plain standard **DIR** command provides.

Users who regularly use **PIP** to transfer files between floppy disks have at one time or another come across this error message: "Bdos Err On B: R/O". Usually what this means is that you have swapped diskettes without performing a warm boot. For the user who would like to copy one file to several diskettes, using **PIP** can be a headache, since each time you transfer a file to one diskette, you must exit **PIP**, log onto the drive that contains a new diskette, do a CTRL-C (warm boot), then return to **PIP**. **RPIP.ASM** is a public domain utility that can solve this problem. The object code of this program is merged into your existing **PIP.COM** program, thus creating a modified **PIP** program. The patch adds an **R** and **Q** command. The **R** command performs a warm boot on all drives, thus preventing the R/O error, and the **Q** command is a 'quick repeat' command that both resets the drives and automatically repeats the last command issued. These functions are a welcome relief for the frequent **PIP** user.

TYPEL.COM * is a replacement for CP/M's resident **TYPE** command. It performs exactly like **TYPE**, except it also allows you to view files

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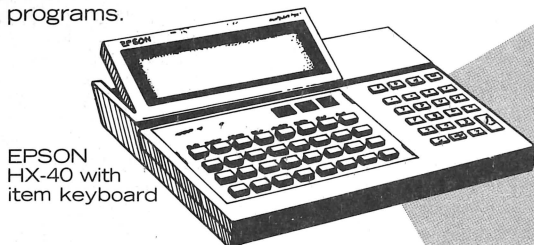
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that are still squeezed, and also allows you to view library file members without extracting them.
Here are some examples of usage:

A>TYPEL MDM722 MDM722.IQF	:types member file in LBR
A>TYPEL TEST.AQM	:types normal file
A>TYPEL F4:TEST.BQS	:accepts ZCPR drive/user
A>TYPEL FOO.ASM \$N	: \$N option=not paging

If 1 argument is supplied, a single file is typed. If 2 arguments, TYPEL assumes the first argument is type LBR and attempts to type LBR member.

SUPERSUB.COM ** is a replacement program for CP/M's batch utility program, SUBMIT.COM. The major functions that SUPERSUB can perform, which SUBMIT cannot, include both a batch and interactive mode. SUPERSUB also supports submit file nesting. Here is what SUPERSUB's built in help has to say for itself:

How to use SUPERSUB:

A>SUPERSUB <CR>	:print this HELP message
A>SUPERSUB /<CR>	:go into interactive mode
A>SUPERSUB /<cmd lines>	:use SUMMARY mode
A>SUPERSUB <FILE> <PARMS>	:as in standard SUBMIT.COM

In "/" (interactive) mode, SUPERSUB will prompt you a line at a time for the SUBMIT job input. Logical lines may be combined on the same input line by separating them with semicolon. Example:

A>SUPERSUB /STAT;DIR

specifies two commands on the same input line. Submitted jobs may be nested as SUPERSUB does not erase any existing submit job (appends to them instead). To insert a control character into the output, prefix it with a "^" (works in any mode).

SUPERSUB should be powerful enough for most applications, however, both SUBMIT and SUPERSUB will prematurely abort if an attempt is made to change user areas during the course of running a .SUB file. This is because both these utilities are disk based, and they create temporary files on the 'A' drive of your system.

EX.COM * is a memory based .SUB utility that contains both a batch and interactive mode. EX also includes an XSUB type utility built in, eliminating the need for CP/M's XSUB.COM program. Since EX is memory based, it is possible to move among user areas in a .SUB file without premature abortions. The only disadvantage is that EX uses approximately 3k of TPA space as it's being used, preventing a few extremely large programs that you may have, from executing under the control of a SUB file.

Printer Utilities:

PRINT.COM ** is a fantastic little program that prints files to your printer. It's features include a banner header of the filename, formatted output with line numbers and auto-perf skip. This is a must for programmers or users who print numerous text files to their printer.

UNPOOL.COM * is a printer spool utility. It allows you to spool files to your printer, thereby allowing you to use your system while files are printing.

Summary

There are many more utilities available in the public domain that can further enhance the power and ease of use of your operating system (e.g., editors, disk utilities, file maintenance utilities, and so on), but the ones mentioned in this article are the most useful ones we've come across that can be used by a wide range of users.

The best source for these types of programs is in RCPM bulletin boards that are scattered throughout the country, through CP/M based user groups or of course our EpsonConnection, Disks of the Month.

** program is on EC-15.

* program is on EC-17.

SPECIAL OFFER

Since about half of the programs mentioned in this article are contained in our Nov. '85 Disk of the Month (EC-15), we will offer both EC-15 and this month's EC-17 at a reduced rate of only \$20 for the two disk set. Please specify "EC-15/17 SPECIAL" when you place your order. Note that ZCPR will also be included with the EC-17 disk to minimize your expense.

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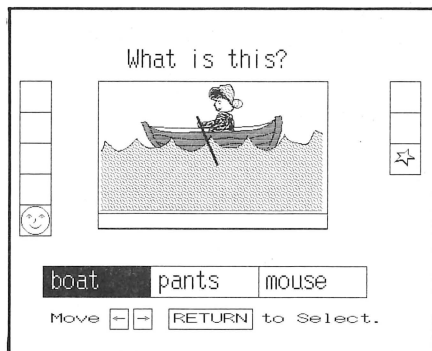
This utility can be used to reconstruct files with bad sectors, to recover files from disks with damaged directories, to restore erased files and to do general disk editing. It is menu driven and easy to use.

The Software Store
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Marquette, MI 49855
906-228-7622

HX USING & PROGRAMMING THE HX-20 \$16.95

This book for HX-20 users contains information for novices and experts alike. It includes descriptions of available hardware and software accessories, tips on converting programs from other machines, programming examples (including assembler), and an explanation of the internal workings of the machine.

Packet Press
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QX EARLY READER'S TOOLKIT TPM \$34.95

This is a reading and vocabulary development program intended primarily for use by five to eight year old children. Special features include the extensive use of graphics, full HELP functions in all modules, complete printer support, and the use of three separate prize games as rewards for correctly completing a series of words.

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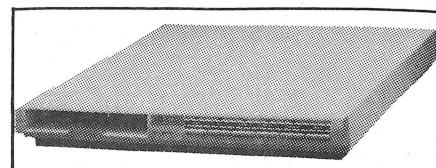
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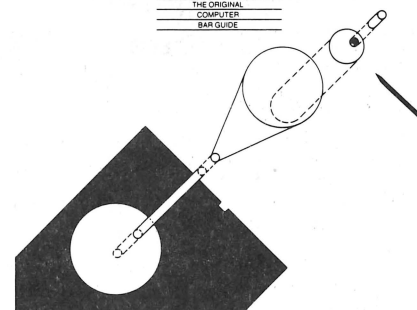
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HX Exchange

by David Sweeney

More MONITOR Commands

Many users are not aware that the MONITOR can be invoked from within BASIC itself. If you would like to learn more about MONITOR commands try typing in the following sequence starting from the MAIN MENU:

KEY(s) PRESSED	FUNCTION
2	Enter BASIC
[CLR]	Clear the screen
MON.	Enter the Monitor (from BASIC)

At this point you will see the MONITOR screen displayed as you would have if you had selected option 1 from the main menu. If you want to experiment a little further, try this:

D270. display 15 bytes of memory,
 starting at location 0270 (HEX)

The 'D' (for DISPLAY) command is used to display the contents of memory starting at the location that you specify. What you will see is a screenfull of numbers that may seem very meaningless to you, but are essential to the computer. The second line shows: 0270: 7D B7 7E F6 7D, which represents memory address (0270 HEX) and the data contained in it and the following four memory locations. The data contained in the first two locations (0270 & 0271) forms an address (called a 16 bit pointer) which points to another area of memory where the screen data is stored.

While this display format may seem foreign to some of you, it is conceptually similar to looking at the letters 'ABCDE' displayed in successive columns on the same line of the screen. On the screen, bytes of memory appear as characters whereas the MONITOR displays them as numbers of ASCII codes.

The location 0270 HEX happens to be the first byte of the storage area for the Virtual Screen Definitions including width, length, and location of the screen as well as cursor coordinates scroll mode etc. In fact PowerPak's ability to maintain multiple files of various dimensions is accomplished by manipulating this table. Rather than putting a file on the screen as most word processors do, it puts the screen on top of a file.

The virtual screen on the HX-20 simplifies programming tasks because its structure allows the software to define exactly how the screen is to work, rather than imposing the restrictions of a fixed screen. For example, you can actually define a screen that is located in the RAM FILE area, at which point all you have to do to put data into a file is to print it on the screen! This results in a very powerful and efficient way of managing data since the need to transfer from the file to the screen and back again is eliminated (your file is your screen, your screen is your file etc.).

You should still have the 'D' displayed on the top (command) line of the screen. Now type the two first numbers (4-digits) that are displayed on the screen. The numbers on your screen will not necessarily be the same as those used in the example below, make sure you use the numbers that appear on your screen.

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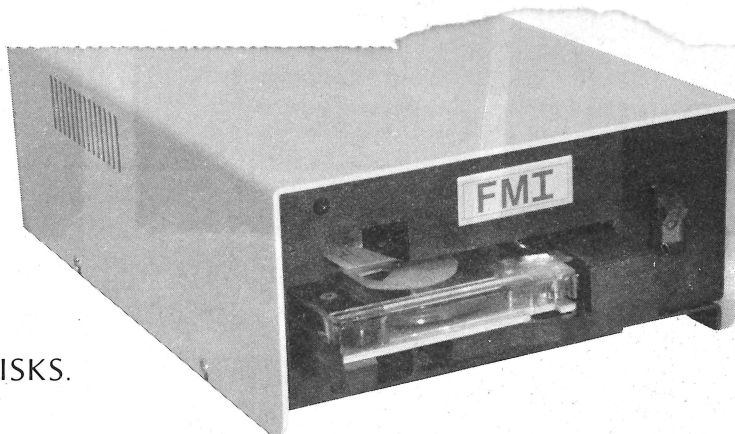
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MAP

Micro-Art Program

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Assuming that the second line contains: 0270: 7D B7 7E F6 7D. You should type in the first two numbers that appear on the second line next to the 'D'. In this case the first line will look like this: -D7DB7. Now press [RETURN] and the data at the location you have specified (at 7DB7 in the above example) will be displayed. If you have followed the previous steps correctly you should see the following digits displayed on the second line: 7DB7: 4D 4F 4E 20 20.

Believe it or not this is the text that was displayed on your screen before you entered the Monitor from BASIC. The digits 4D, 4F, 4E are the HEX ASCII codes for the letters 'MON' (see VOL 2 p. 481 for code table). As you can see, the Monitor can be useful for displaying blocks of memory should the need arise. In BASIC, a series of PEEK commands would have been required to get the same results.

At this point you can actually edit what is on your (virtual) screen by altering the data directly rather than using the cursor to type it in. This is done using the Monitor 'S' command (for SET MEMORY). Try the following:

Erase 'D' at the top of the screen using the [DEL] key. Now type S7DB7 (or S and whatever number you have been using as indicated by the numbers to the left of the second line). When you press [RETURN] the first byte of data will appear next to the current 'memory address'. In my example the top line of the screen shows S7DB7 4D. At this point you may alter the data stored at the address indicated by typing in a new two digit HEX CODE or leave it alone by pressing [RETURN] in which case the next memory address along with the data byte contained at that address will be displayed and you can continue the process.

Press [RETURN] alone for the first byte and then when the '4F' digit comes up change it to 41 by typing 41

[RETURN]. You should now exit the SET MEMORY mode by entering an invalid code like '.'. Once this is done you can go back to BASIC by using the 'B' command. This is done by typing B[RETURN].

If you managed to follow this (admittedly) somewhat confusing sequence of keystrokes you should see the word MAN displayed where the word MON used to be. As you may have guessed the 41 that you entered is the ASCII code for the letter 'A' which replaced the 4E (ASCII letter 'O'). Whether you realize it or not, what you have just done is one of the fundamental operations carried out by a word processor when editing text, namely that of a REPLACE or OVERTYPE function.

In other words each byte of data displayed in the virtual screen data area contains one ASCII code that gets displayed on your screen. For example when you use the insert feature, the data is being shifted to HIGHER memory locations and then the LCD is made to reflect the data stored in memory. In general, what you see on a computer's screen is just a block of memory that has been routed through some sort of hardware circuit (VIDEO, LCD etc.) in order to make the numbers stored in memory appear as visible characters.

At this point you may be asking yourself, "if the MONITOR is more difficult to use than BASIC, why does anyone bother with it?" If I told you that programming in machine language, although slower to develop software, produces code that executes about 100+ times faster than BASIC and requires about 1/10th of the memory to do so, would you understand? In the next issue I will provide an example of a program done both ways, try them out and judge for yourself. As well, I will be contributing some public domain software that should be of interest to any HX-20 users that are interested in learning A little more about what makes things tick.

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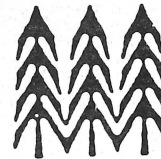
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R_x
for
PX

by Bob Hermann

PX to UNIX

Dr. James Woody from Bethesda, Maryland uses the Geneva Connection to transfer files from his PX-8 to a UNIX system running under VAX. Although he initially experienced some difficulty in establishing the proper format to accomplish the transfers because the UNIX system views the ^Z that CP/M sends at the end of each file as a "suspend all transactions" command, a successful solution was accomplished. By temporarily instructing the UNIX system to alter the suspension code, he was able to achieve success. The following are the Geneva Connection scripts that he uses.

```
SCRIPT HUN
DISP Home or local call to UNIX at 300 Baud
PORT INT
BAUD 300
BITS 7
STOP 1
PARI E
PROT X
ECHO R
SUPPLY LF N
DISP Now dialing XXX-XXXX
DIAL T,,XXXXXX 50
REPLACE 1A 20
END
```

```
SCRIPT UC
WAIT 1
SKIP 0
#TEXT 0D
#TEXT 0D
WAIT 2
SKIP 0
TEXT "username"
#TEXT 0D
```

```
WAIT 1
SKIP 0
TEXT "password"
#TEXT 0D
WAIT 12
SKIP 0
TEXT stty susp }
#TEXT 0D
WAIT 1
SKIP 0
TEXT stty all
#TEXT 0D
WAIT 2
SKIP 0
TERM
END
```

The first script (HUN) is used to call the system, while the second one (UC) logs in and makes the necessary changes to the UNIX system to allow file transfer. The UC script directs UNIX to display the corrected version of the stty stop command (changed from ^Z to }) to insure that it has been properly altered. The UC script requires about 30 seconds for login and UNIX display. Only ASCII files may be transferred, and it is mandatory that you send a ^D to the UNIX system to close and save the file after it has been transmitted.

WORDSTAR TIPS

Here are a couple of WordStar macro tricks that you may find useful to put in a PFK file, or simply use CONFIG to set up on PFK 5 -10. To move one page forward in a file use the following sequence:
^QF^N<cr>55<cr>. This assumes

you are using the standard 55 line page. Then you can move backward one page with: `^QF^N<cr>B55<cr>`.

If you put two spaces at the end of every sentence, you can use the following sequence to move to the beginning of a sentence:

`^QF<sp><sp><cr>B<cr>^D^D`.

To move to the end of sentence, you can use: `^QF<sp><sp><ESC>`.

To delete from the cursor to the end of the sentence, use the following set of keystrokes:

`^KB^QF<sp><sp><ESC>^KK^KY`.

WHY DO?

In RX for PX (Nov. '85), we featured part of the documentation for DO.COM, a program developed especially for the PX-8 by Mike Yarus. This month's Tape of the Month features DO and we are even sponsoring a contest based on it in this issue. Why all the hula-balo about one little program? We hope the following remarks will explain the significance of DO.

The basic PX-8 comes with only 24K of user RAM. Several 'patch' programs have been developed for use with the Epson computer and many users find these programs a must in order to use the computer productively. But this means occupying some of that valuable RAM space. No matter how small a patch or utility program may be, the minimum amount of space that it occupies is 1K (on the PX A drive). BATTERY.COM., for instance is only 128 bytes long, but it takes up 1024 bytes of the RAM disk. Why?

To answer this we will use a program called DU.COM to explore some of the attributes of the drives of the PX. If we invoke DU on the D drive (PF-10), we are presented with the program's command prompt, a colon. Enter an '#' and you will see the following:

Statistics for drive D:

Tracks:	39	27
Sys tracks:	4	04
Groups:	139	8B
Dir Groups:	1	01
Sec/group:	16	10
Dir entries:	64	10

The numbers on the left are decimal, those on the right are the hexadecimal equivalent. What we are concerned with is the Sec/group (sectors per group) line. One sector is 128 bytes. When space is allocated for a file, it is not done so in sectors, but in groups (allocation groups). A certain number of sectors are treated as a group, depending on the particular computer you are working with (or in the case of the PX, the drive you are on, as we shall see). A group then becomes the smallest space that CP/M can allocate a file.

February 1986

We see that on the D drive, the smallest space a file can occupy is 16 sec/group x 128 bytes per sec = 2048 bytes/group (or 2K).

If we switch to the A drive by entering 'LA' at the DU command prompt, and then issue the '#' command again, we see that there are 8 sec/group. The minimum file size then becomes 8x128 = 1024 bytes = 1K. So a 1K file on the A drive becomes a 2K one on the D drive! As a comparison of different group sizes, the 70 Megabyte hard drive in the EpsonConnection office uses 64 sec/group; so a 128 byte program like

Continued from page 13

Based on an average of your results, the program will then determine how many rounds of the *Null Grav* game you will get to play. This game is a reward given to the player. The object of the game is to fly your ship to the proper destination, then successfully land it.

The game first draws a map of the continental USA and places dots where all state capitals and other major cities are located. The program randomly selects a home and destination city. Using your arrow keys, the player must fly his ship to the destination without running out of fuel.

BATTERY.COM would occupy 64x128 = 8192 bytes = 8K on this system.

DO allows the combination of several files into one. This enables the memory, that would otherwise be wasted by the CP/M allocation scheme, to be put to productive use by the PX-8. If the three programs in the distributed copy of DO were stored separately on the A drive of the PX, they would occupy 3K, instead of the 1K that the DO requires. To someone with only 24K of RAM available, that 2K difference can be very significant.

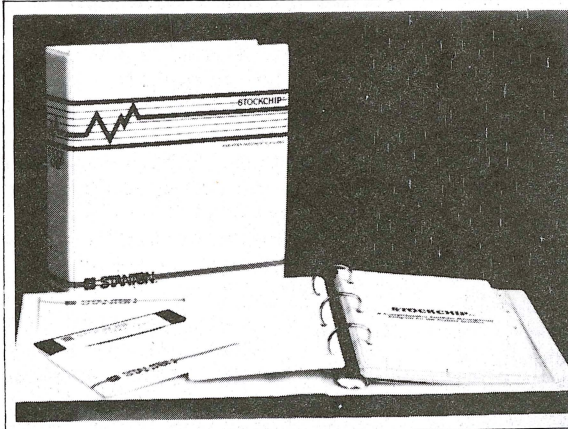
Once the destination has been reached, the program draws a new screen showing a small landing pad between several tall buildings. The player now must land his craft before running out of fuel or crashing into a building.

This program is an excellent educational program. Unlike many other educational programs, this one gives the user a substantial reward for correctly answering the questions.

Congratulations to Mr. Dan Oja, creator of the program, for a job well done. I highly recommend this program. It is available through Rising Star Industries, 25500 Hawthorne Blvd. Suite 2000, Torrance, CA 90505.

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A Note on Library Files

by Doug Kitson

NULU.COM is a utility program which organizes library files. PX-8 users who visit CompuServe's "EpsOnLine", Epson Connection's "EpConn-SOCIS", or any other CP/M bulletin boards to obtain public domain software, will already be familiar with "library" files. Library files, which always have the extension .LBR, are actually a collection of different files put together into one file so as to save space and to group similar files so that member files will not be overlooked.

To give you an example of how space is saved I made, on my disk, a library of a random collection of nine small programs which occupy a total of 325 records. As file space for each file on disk is allotted in blocks of 2K (1K on the RAM disk), the nine files actually take up 400 records or 50K. When put into a library, which has no minimum allotment per member-file but allows each file to occupy the smallest possible space, the very same files use only 42K of the disk. The library adds two or three extra records for its own directory, so in the example given, the library used 328 records.

The other reasons files may be placed in a library is so that when someone is downloading files from a data-library, which could conceivably contain several hundred files, the document files or overlay files also needed will be downloaded along with the main file. Martin Murray, the author of NULU, states that NULU.DOC must be distributed together with NULU.COM. To ensure that this is done, the SYSOP (System Operator) of a BBS could put the two files together in a library called NULU.LBR so that anyone downloading NULU will get both files. When such document files are included in a library they are usually squeezed to save still more space.

NULU.COM

The 1984 version 1.0 of NULU.COM is a library manipulation program included on EpsonConnection's Tape

of the Month No. 9, as well as on most EpsonConnection Disks of the Month. This copyright program was written by Martin Murray of Dallas, Texas, the copyright being held by SYSTEM SOLUTIONS and the program being made available by them. It will function on the PX-8 or QX without any modification. There are however some optional modifications available which will be discussed later.

NULU Features

The programs primary function is to create and manipulate library files. Library files can contain any type of file you wish to include; .COM command files, .DOC or .TXT files, unsqueezed or squeezed files, .ASM, .HEX, .PRN, or any other files one might want to group together.

- New files may be added to a library file that already exists.
- A file that is not in the library may replace a file with the same name which is already in the library. For example if a new version of a file called DO.COM were obtained and one already existed in a library, then the library could be opened and the old version of DO.COM could be replaced by the new version in one simple step without having to completely re-create the library from scratch.
- A list of the library members can be read without its having to be extracted.
- ASCII files, that is document files but not program files, can be read directly from the screen or sent to the printer without your having to extract the file from the library first.
- Files within the library can be renamed, or deleted.
- Individual member files of the library can be extracted. When doing this there are several options available. A single file may be extracted and sent to any drive (and may even be renamed at the same time.)
- Wildcards can be used to extract groups of files. *.BAS = D: would, for example, extract all basic

programs in the library and place them on the floppy disk; *.DOC = H:*.TXT would extract all ASCII files with the extension DOC, place them on the microcassette and rename them with the extension TXT; or several individual files can be extracted, each renamed, each re-directed to different disks and different user areas all in one simple, (yes, it is simple) command line. Once again let me say that the documentation is very easy to follow and understand.

- Other options are available from within the program. Changing the logged drive or user area, viewing the directory of any drive, unsqueezing squeezed members, directing all operations of NULU from a separate file similar to SUBMIT, and reading the amount of remaining free space on any drive are among these other options.
- File sweep is an option that deserves special mention. This option, called "Filesweep", puts the user in a different command mode which resembles that of NSWEEP; in this mode member files of the library are displayed, as in NSWEEP, one below the other. After each member file name is displayed several options are available, these mostly duplicating the options from the main NULU command mode but in a way which may sometimes be more efficient or easier to use when dealing with individual members.

How to use NULU

The most common use of NULU is to extract (and unsqueeze) files from a .LBR file that you have downloaded from a RBBS. To accomplish this, all you do is invoke NULU by entering "NULU <cr>" at the CPM prompt. All NULU commands are preceded by a "-". The first action you'll want to do is to open a .LBR file. Inform NULU of this by entering "-o <cr>". Then enter the file name, without the .LBR extension (any file NULU works with MUST have an .LBR extension). Now, to extract and simultaneously unsqueeze all files to the same drive,

just enter "-q ** <cr>". And that's it.

Library files obviously do not provide as easy access as do non-library files. It is not, however, necessary to extract a file to run it if you have LRUN.COM, which was written by Gary Novosielski. If you don't already have it then you can get it on EpsonConnection's Tape of the Month number 9 along with NULU.COM, or on the Disk of the Month EC-17 (March '86).

Geneva PX-8 Notes

If you have a 120K ramdisk, then you don't have access to that very useful third ROM slot. You probably keep several utilities on your ramdisk. Why not conserve as much space as possible by making them into a library, and then use LRUN to access them.

Using LRUN is extremely easy, just type LRUN followed by a "-" and the library file name, then the program command line of the program to be run. I have a Portable WordStar loader program, written by Gary Argraves and Mike Morra, which changes printer configuration and loads Portable WordStar. If you're interested in it then it's available on Tape of the Month number 6. I keep several versions of the loader to configure the printer for different purposes, all in a library called WSPRINT.LBR.

A>LRUN -D:WSPRINT WSEMPHAS
TEST.DOC

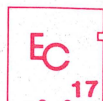
...will run the LRUN.COM program which looks on drive D: for WSPRINT.LBR. It will then look for the program WSEMPHAS.COM in WSPRINT.LBR and run it; WSEMPHAS.COM will then, in turn, load and run WS.COM configuring it to print in the emphasized mode and then load the document file TEST.DOC. At the end of all this you would be within Portable WordStar ready to continue editing the TEST.DOC file.

Summary

NULU.COM and LRUN.COM are a couple of very useful programs for anyone; those who use their computer for telecommunicating will find them virtually impossible to do without. If you're interested in getting copies of NULU.COM or LRUN.COM you can order Tape of the Month, TOM-9 for \$10.00 or Disk of the Month, EC-17 for \$15.00. Send orders to:

EpsonConnection
Disk/Tape Service Department
P.O. Box 14227 Detroit, MI
48214

Disk of the Month



This disk contains more CP/M utilities (in addition to those on EC-15). For complete information as to what these programs do, please refer to the article "Customizing CP/M" in this issue.

D.COM
TYPEL.COM
ZCPR.LBR

EX.COM
UNSPPOOL.COM

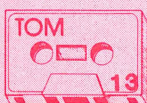
LRUN.LBR
USERPW37.ASM

SECTION.ASM
XCCP.LBR

These public domain programs are provided on a quality diskette and the price does include shipping, postage, and handling. **To order the EC-17**, please send a check or money order for \$15 to the EpsonConnection, Disk Service Department, P.O. Box 14027, Detroit, MI 48214. Please be sure to indicate the disk order number (EC-17) with your payment.

If you have a modem, these programs are also available from the EpConn SOCIS BBS at 313-823-1425, 24-hours, 7-days.

Disclaimer: All of the programs and documentation on this disk are known to be public domain and no warranties are expressed or implied. There are no guarantees with public domain software. All of the programs have been tested on the Epson QX-10, and are known to run. Public Domain programs are programs written by other users, for public use at little or no charge, other than that for handling, mailing and materials. **Note:** We imply no similarity, or advise any comparison, between public domain software and software that is commercially produced. A beginning knowledge of CP/M and a library utility (LU3 or NULU) is also recommended to utilize this software.



Tape of the Month

- DO.COM (2K) - DO.COM contains a battery voltage utility (BAT.COM), a function key assignment program (PFK.COM), and a date and time recording program for file dating (TD.COM) - all in less than 1Kbyte! Very useful when disk space is limited. The document file for this program thoroughly explains how to create your own DO files. To do so, you need ASM, LOAD, and DDT (or public domain programs that accomplish the same functions, like LASM, and PATCH on TOM 10. See the October 1985 RX for PX for a complete explanation of DO.
- DO.ASM (4K) - ASM file for DO.
- TYPWRT.COM (4K) - This turns the PX-8 into a typewriter, sending what is typed on the computer to the printer. It allows for variable margin control, tabs, and variable fonts. You must have a PATCH or DDT type of program to install your respective printer codes.
- PRINT.COM (2K) - PRINT.COM is a file printing utility, originally written in C. It is designed to give attractive, practical printouts of text files, with comfortable margins, the filename and page number on each page top, and an optional comment. May also print portions of a file or direct output to the screen.
- GLP3.COM (6K) - A printer setup program for use with the Centronic Great Little Printer or Axonix ThinWrite printer.
- CALCX.COM (2K) - A patch program for PortaCalc allowing printer output of more than 80 characters per line.
- CALC.BAS (2K) - This BASIC program turns the PX-8 into a calculator.

To order the Tape of the Month, please send a check or money order for \$10 to The EpsonConnection, Tape Service Department, P.O. Box 14227, Detroit MI, 48214. Please be sure to indicate the tape number you are ordering (TOM 13).

Disclaimer: All of the programs and documentation on this disk are known to be public domain and no warranties are expressed or implied. There are no guarantees with public domain software. All of the programs have been tested on the Geneva PX-8, and are known to run. **Note:** We imply no similarity, or advise any comparison, between public domain software and software that is commercially produced.

PLEASE remember that a Tape of the Month should be treated like any software you obtain -- the FIRST thing you should do when you receive a Tape of the Month is to make a backup copy. Granted that if you have no other storage medium besides cassettes this can be a little bit of a hassle. The time and inconvenience necessary to accomplish this is minimal compared to that of obtaining a new copy of the tape.

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DO CONTEST

You can win a modem-wedge unit for the PX-8, a SPELL ROM (2 chip set), or a personalized ROM for the PX just by creating your own DO files (see the October Rx for PX for an complete explanation of DO). Use DO.ASM to generate your own DO file and submit it on microcassette to the EpsonConnection. We will judge entries on originality, usefulness, disk space conserved and performance. The author of the best DO file will have his choice of a wedge-internal-modem unit for the PX, the spell checker ROM set described in last month's issue, or a free personalized 32K ROM. The second place winner will have his or her choice of the remaining prizes, and the third place winner will receive the final prize that remains.

The rules are simple. Use the DO concept to create your own DO file. Create and submit as many DO files as you want. You may leave the three programs contained in the DO file on this month's TOM intact (or delete them), but you must add at least three of your own. You may use only public domain programs in your DO file(s), which should not exceed 31K in length. Submit your DO file(s) on microcassette to the Tape Service Department by April 15, 1985. All entries become the property of the EpsonConnection.

No one will be a loser. All valid entrants will receive a Tape of the Month of their choice (one tape per person). You must indicate your Tape of the Month choice with your entry. Also be aware that by submitting a valid entry, "you are donning the greasy coveralls of a programmer". May the Force attend you.

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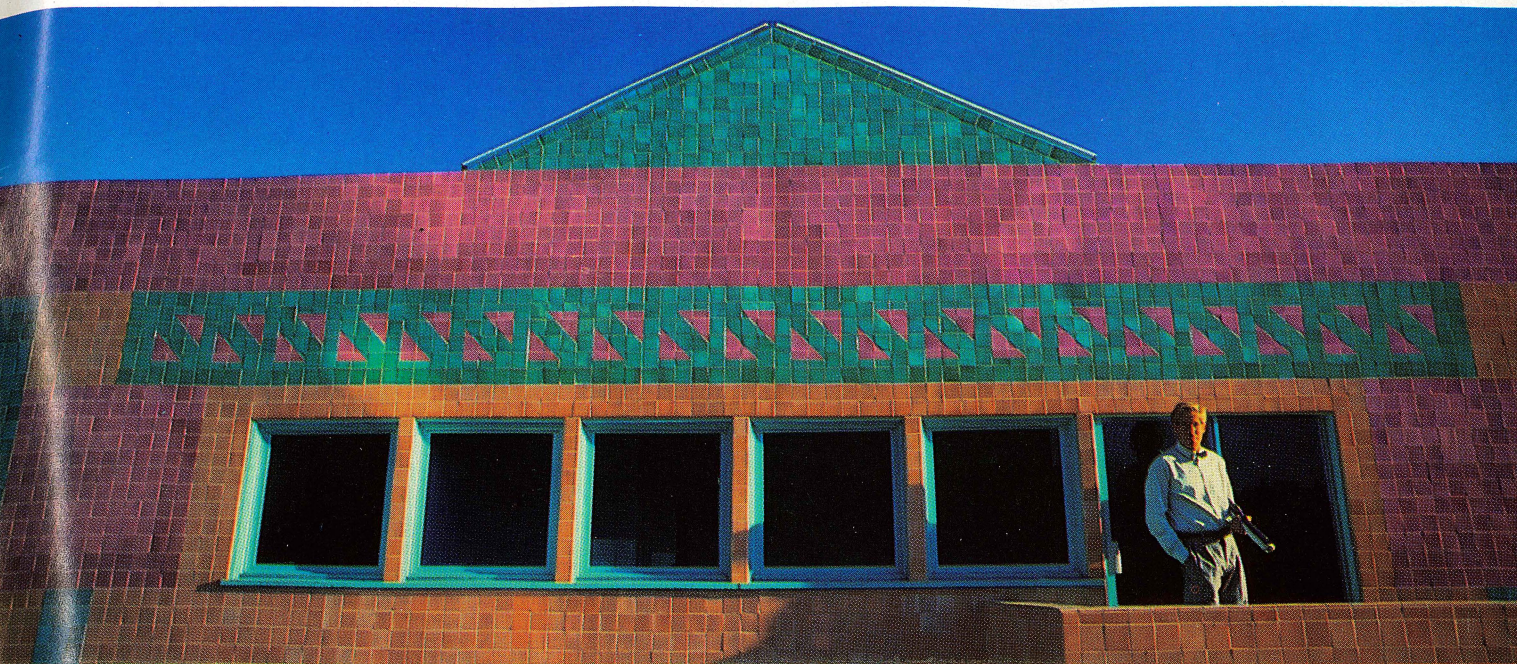
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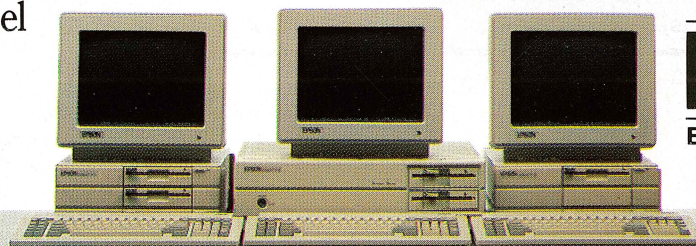
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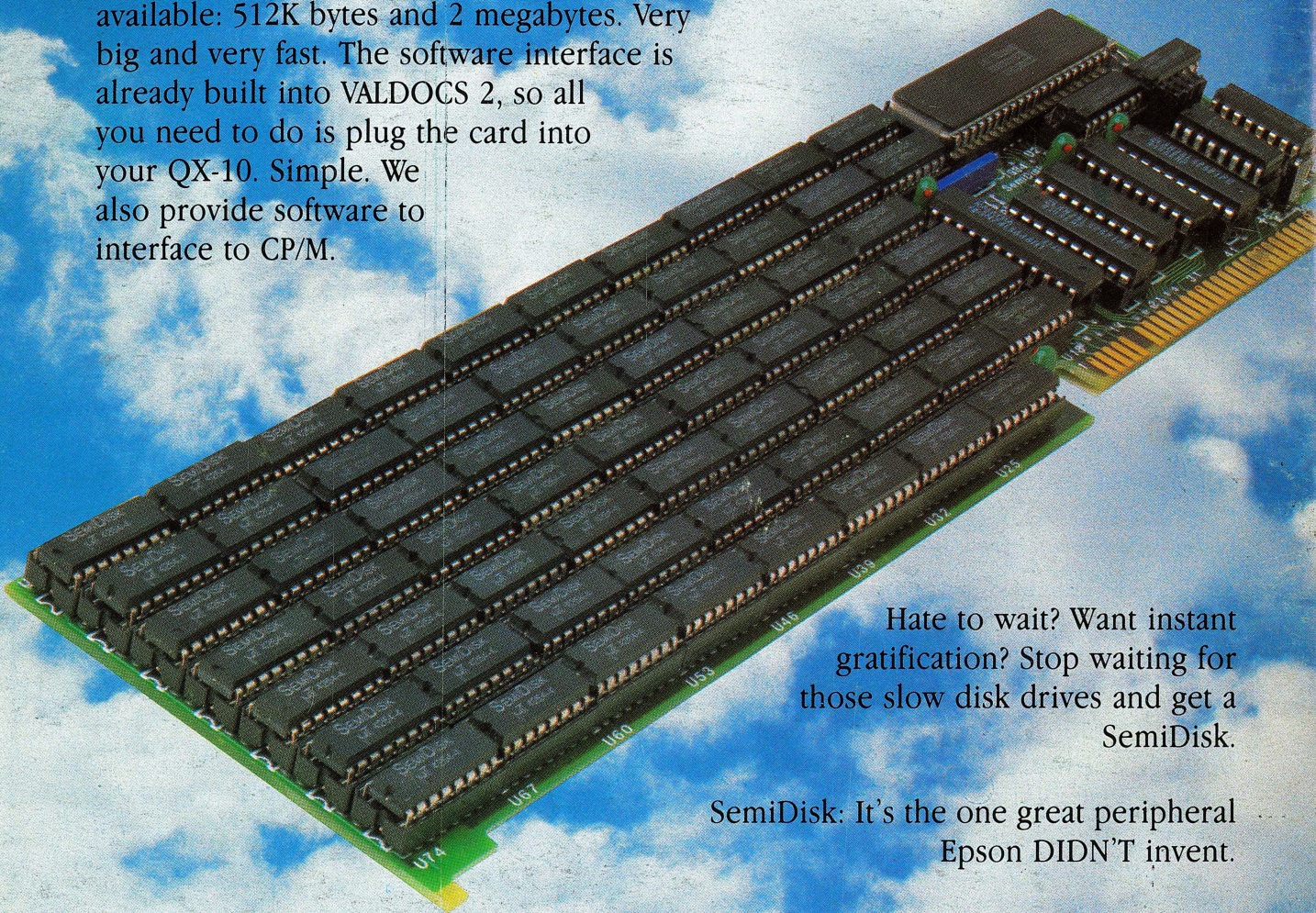
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